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Services to develop, standardize, and validate polymerase chain reaction (PCR)

protocols for the detection of leishmaniasis in clinical samples

PRINCIPAL INVESTIGATORS:

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The disease Leishmaniasis, endemic in Africa, South West Asia, and South America, is caused by transmission of a parasite of the Leishmania species via the bite of an infected sandfly. The severity of the disease ranges from cutaneous lesions to a frequently fatal visceralization of the internal organs unless treated at an early stage. Detection of the parasite is difficult because only low numbers of infected cells are found in Peripheral blood. Existing tests for Leishmania parasites are time consuming and have high (50%) false negative rates. We report here the development of a rapid polymerase chain reaction (PCR) based diagnostic capable of detecting 1-10 infected cells in 1.5 x 10⁶ PBMCs or 2-5 mls of peripheral blood. The test has an accuracy greater than 92%, and a false negative rate of less than 8%, when validated against known clinical samples

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1. Objectives

As set forth in the Statement of Work for contract DAMD17-92-C-2097 entitled "Services to develop, standardize, and validate polymerase chain reaction (PCR) protocols for the detection of Leishmaniasis in clinical samples", the objective of this study is comprised of In the first phase, the contractor shall "Develop and standardize the technology known as the polymerase chain reaction (PCR) for the detection of leishmaniasis in clinical samples". Phase II defines the task of the contractor to "Validate PCR testing protocols developed as a result of the first objective in a large select military population of approximately 2,500 to 3,000 individuals". The mid term report (October 20, 1993) described the development of a polymerase chain reaction (PCR) assay for the detection of leishmaniasis and testing of a limited number of clinical samples. This final report includes the summary of the previous report and the additional work carried out to optimize the PCR methods for Old World and New World species of Leishmania and testing of additional clinical samples from different geographic areas.

2. Introduction

Leishmaniasis, a very important zoonotic disease of humans in the developing countries, became a problem of considerable concern in the United States, following Operation Desert Storm (ODS)(1). The etiologic agent of leishmaniasis is a protozoan of the genus Leishmania. Members of the genus Leishmania are grouped broadly into the New World (L. mexicana and L. braziliensis complexes) and Old World (L. donovani and L. tropica) species. Four species and at least 15 subspecies are generally recognized. All are similar in morphology and life history. The parasites which infect humans are transmitted by the Old and New World sandflies, Phlebotomus and Lutzomyia, respectively. In the insect vector, the protozoan is found as the flagellated or promastigote form. Upon introduction into the human host, and if phagocytized by a macrophage, the parasite transforms into the non-flagellated, ovoid form, the amastigote.

Three major types of pathologies result from active infection with Leishmania. Cutaneous leishmaniasis is characterized by fairly localized cutaneous lesions. If the organism spreads from the site of infection to the nasal cavity and naso-pharyngeal region, the severely disfiguring mucocutaneous leishmaniasis can result. The most severe form of the disease occurs if the parasite metastasizes through the reticuloendothelial system, to infect the spleen, bone marrow, and other tissues. Visceral leishmaniasis, or Kala-azar, is frequently fatal, if untreated.

Increased travel between the industrialized countries of the West and the developing nations, by businessmen, military personnel and tourists, mandates the development of more appropriate tools for laboratory diagnosis of this potentially very serious disease. Effective drug treatments to control the infection are available, but a proper diagnosis is required before starting treatment. To apply laboratory diagnostic methods in developing nations,

simplified assay formats are desirable. A further reason to pursue development of nucleic acid based tests which are simplified and amenable to large scale screening is their potential for preventing the dissemination of these and similar parasitic infections through the blood donor pool.

For the purposes of this study, the primary interest is in Old World species, as these are the organisms native to the geographic region where ODS took place. The strains L. tropica, L. major, and L. donovani predominate in south west Asia, and are the 3 species against which most of the PCR primer sets described in this report were tested. When patient samples were used as positive controls, the majority of these were from geographic regions where L. donovani predominates. During the course of this contract, however, several New World and Old World species have also been examined, as well as patient samples from South and Central America, Africa and India.

2.1 Polymerase Chain Reaction (PCR) Assay

The polymerase chain reaction (PCR) is in vitro DNA replication. Rather than the DNA double helix being unwound by replication-associated enzyme complexes, DNA is heat-denatured in the presence of a thermostable DNA dependent DNA polymerase, oligonucleotide primers complementary to target sequences to be amplified, and deoxynucleoside building blocks for DNA synthesis. Alternating cycles of denaturation, primer annealing (hybridization), and extension, result in the accumulation of double-stranded DNA fragments of discrete length, termed amplicons. This process operates under defined conditions and for a limited number of cycles as a quantitative exponential amplification of the target sequences. PCR thus results in a vast increase in copies of the target sequence and probably constitutes the most sensitive analytical technique currently available for molecular diagnostics,

being capable of detection of a single copy of nucleic acid per reaction.

2.1.1 Quality Control For PCR

SRA has more than 6 years experience using PCR in both a diagnostic and a developmental testing atmosphere, and is well versed in techniques required to minimize or eliminate the chances of contamination from different sources (2,3). Both physical and biochemical methods of avoiding cross contamination that SRA has followed in testing Leishmania specimens have been described in the mid-term report (October 20, 1993). In brief, these measures include, physical separation of pre- and post- amplification laboratories equipped with dedicated equipments, including certified Biosafety cabinets equipped with HEPA filters for all steps involving potentially infectious materials; strict QC of all reagents; single-use frozen aliquots of critical reagents; use of either positive displacement pipettors with single-use tips and pistons or special commercially-available pipet tips with an aerosol-barrier; proper use of positive and negative controls, hot start method for PCR and use of the enzyme uracil-N-glycosylase (uracil DNA glycosylase, UNG), in a method analogous to the excision repair system of living cells (4). In this method, dUTP substitutes for dTTP in all PCR reactions, and UNG is included in all PCR reactions. Prior to temperature cycling, this moderately heat stable enzyme selectively excises uracil residues which have been incorporated into DNA during previous amplifications. During the initial heating step in PCR, the DNA backbone of any contaminating previously amplified material is broken at these apyrimidinic sites, thus preventing the Ucontaining DNA from serving as a template for polymerization. Since native DNA templates do not contain U residues and since Tag DNA polymerase efficiently incorporates dUTP as well as dTTP during PCR, this technique can be made to operate without decreasing sensitivity or specificity of PCR reactions. Pretreatment of all . PCR reactions eliminates the most common cause of a false positive result - carryover of amplified DNA from a previous amplification. SRA has incorporated this technique into PCR protocols for the amplification of HIV-1 and HTLV-I/II, as well as all PCR methods which have been used by us to amplify *Leishmania* sequences.

2.1.2 Design of an Appropriate Testing Algorithm

In the course of conducting PCR testing prior to the advent of UNGmediated carryover prevention, we found it necessary to design PCR testing algorithms to minimize the chance of false positive test results arising from PCR product contamination (5). Specifically, we have tested (and continue to test) all specimens as duplicate reactions plus a negative control spatially unique to the duplicate reaction set, with a primary primer set. Reaction products are subjected to hybridization analysis using an oligonucleotide probe to sequences bracketed by but not overlapping the primers. A result of "reactive" is then defined as the detection of specific hybridization signal in both duplicates, with no specific signal in the corresponding negative control reaction. The detection of specific hybrids in only one duplicate is defined as a result of "non-diagnostic," necessitating repeat testing. "Non-reactive" refers to the absence of specific signal in both duplicates, with low copy number positive controls being detected. In spite of the introduction of sophisticated biochemical methods for detection of product cross-contamination, the ever-present possibilities for operator error support the continued use of carefully-designed PCR testing algorithms.

2.1.3 Optimization of Reaction Parameters

In addition to the techniques designed to eliminate contamination and resulting false positives, all PCR reactions are optimized for both specificity and product yield. These procedures include empirical determination of optimal oligonucleotide ratios and concentrations, magnesium ion concentration, <u>Taq</u> polymerase concentration, and annealing temperature. Despite these precautions, some non-specific annealing of PCR primers does occur, even with single copy gene detection, and more so with the detection of retrovirus or parasite DNA in the presence of a high background of human genomic DNA. Since annealing of primers to template is not 100% specific under all conditions encountered during the course of a PCR reaction, it is necessary to adjust reaction conditions to maximize synthesis of specific product.

While post-PCR hybridization detection ensures that non-specific products will not be detected, the synthesis of these spurious amplicons affects the amplification process. Non-specific reaction products do incorporate PCR primers such that subsequent amplification cycles result in their specific amplification as "quasi-specific" templates. This detracts from the overall efficiency of the reaction, as both non-specific and specific products compete for primer and Tag binding. Careful adjustment of reactant concentrations to strike a balance between maximization of primer hybridization and minimization of non-specific annealing can significantly increase PCR product yield and also extend sensitivity into the < 10 copy range. In our experience, with some primer sets, rigorous optimization can extend the detection limit 2 to 3 orders of magnitude. SRA has pioneered the development of HPLC protocols for quantitation of PCR products (6). analytical precision of HPLC analysis allows more precise determination of PCR product yield, with very fast turnaround, often allowing complete optimization of reaction conditions for a new primer set within two days.

At the start of this contract, HPLC was used to evaluate PCR reaction products. While it has the aforementioned advantages of precise quantitation, it does not have the sensitivity of our current microplate based capture assays. A basic protocol for

using the HPLC for PCR product detection is provided, in the Methods and Results section.

2.1.4 Design of PCR Primers and Probes

Design of synthetic oligonucleotide primers and probes is facilitated by the use of computer software dedicated to that purpose (e.g., Oligo, National Biosciences; Primer Detective, Clontech). After candidate sequences are designed, these sequences are compared to DNA sequences of both related and unrelated organisms by computer homology searches from the Genbank database using the Lasergene DNAStar program running on a Macintosh IIci. These preliminary steps reduce the chance of PCR artifacts (primerdimers) due to primers that share significant sequence homology, or secondary structure that would reduce the overall efficiency of the PCR amplification. In addition, with highly variable sequences or sequences which are only partially known (e.g., Leishmania minicircle kDNA), it has been suggested that PCR primers preferentially end in 3'-T, to minimize the effects of possible 3'mismatch (7). Other strategies to lessen the effect of random nonhomologies with the target sequence include the synthesis of primers with degenerate positions and/or inosine substitutions (8). However, excessive degeneracy should be avoided, in order to maintain specificity. We have exploited this latter technique in the design of some "second generation" primers that show improved detection of New World Leishmania strains in our testing.

In the case of *Leishmania*, almost 20 different PCR primer combinations have been evaluated to date. These include multiple sets that amplify sequences found in the kinetoplast (kDNA) minicircles, one set directed against sequences found in the kDNA maxicircles (equivalent to mitochondrial DNA), one set directed against ribosomal RNA sequences (rRNA), and one set specific for conserved sequences from one nuclear gene (DHFR). Finally, it should be noted that, even though primer and probe sequences have

been carefully chosen based on predicted homology to the desired sequences and the lack of homology to other (especially human) sequences in GenBank, it is still necessary to test these primers sets against actual specimens of related and unrelated organisms. This has been done for all primer sets that show acceptable sensitivity against the *Leishmania* strains of interest.

3. Methods and Results

While there has been significant improvement in the sensitivity of the PCR detection protocol over the two year course of this contract, the basic elements of the procedure employed are common to many of the PCR protocols already in use by SRA. Sample preparation steps and the basic PCR protocols remain essentially unchanged from that described at the start of the contract, since they were validated previously. Similarly, the capture plate procedure for PCR product detection was developed for other applications and its adaptation to this use was governed solely by the design and implementation of Leishmania-specific probes. The PCR reaction and detection protocols are given in the following sections, along with a detailed discussion of results obtained with the various PCR primer sets tested to date.

3.1 Sample Preparation

The sensitivity of PCR permits the detection of the low level of parasites in the peripheral blood, at least during active infection. In many cases, however, peripheral blood samples from a given individual were negative, while splenic or bone marrow aspirates were positive by PCR. Although the major specimen type is whole blood, the protocol given below works equally well for bone marrow and splenic aspirates, as well as cutaneous lesion lavage specimens, thus simplifying the overall test.

We have successfully employed differential lysis for the selective removal of RBC's from blood and bone marrow samples prior to DNA extraction for PCR. This method is based on the specific RBC-lytic activity of saponin, and is quite simple, requiring only the use of a tabletop centrifuge. The blood is gently mixed with 0.3% saponin (Mallinckrodt) in slightly hypotonic saline and allowed to remain at ambient temperature for 5 minutes, during which time RBC's are lysed. Centrifugation recovers leukocytes, which are again washed with saponin to remove residual RBC's. Some specimens need to be washed more than 1-2 times depending upon the amount of contaminated RBC's lysed with saponin. The final cell pellet contained total leukocytes, and appeared to be free of inhibition to PCR, by either heme or the saponin itself. The cell pellet was then lysed by the addition of proteinase K, and, following heat inactivation of the proteinase K, the crude lysate was either used directly in diagnostic PCR reactions or stored frozen until the PCR reaction was set up.

3.1.1 Sample Preparation by Total Leukocyte Separation

- 1. For specimens received in LeukoPREP tubes
 - a. Centrifuge at 3000 rpm for 20 min. Pipet off the supernatant into a 50 mL polypropylene centrifuge tube
 - b. Count cells using ZAP-OGLOBIN. (40 μ L specimen + 20 mL Isoton II + 5-6 drops ZAP-OGLOBIN)
 - c. Add 20 mL of 0.1% saponin in 0.6% NaCl. Mix well by inversion. Maintain at room temperature 5 min.
 - d. Centrifuge at 1500 rpm for 15 min. Decant the supernatant.

2. Whole Blood specimens

- a. Count cells using ZAP-OGLOBIN. (40 μ L specimen + 20 mL Isoton II + 5-6 drops ZAP-OGLOBIN)
- b. Add 10 volumes of 0.1% saponin in 0.6% NaCl. Mix well by inversion. Maintain at room temperature 5 min.

- c. Centrifuge 1500 rpm for 15 minutes. Decant the supernatant.
- d. Resuspend the pellet with 15 mL 0.1% saponin in 0.6% NaCl
- e. Centrifuge 1500 rpm for 15 minutes. Decant the supernatant.

3.1.2 Cell Lysis

- 1. Use the cell count taken at the beginning of this procedure and determine lysis buffer volume for 30 X 10⁶ cells/ml. Add the determined volume of lysis buffer containing 2X proteinase K. Vortex briefly.
- 3. Incubate in a water bath at 55° C 60° C. for 1 h. Vortex briefly. If a large number of cells are being lysed, it may be necessary to vortex several times during this hour or extend the incubation time.
- 4. Transfer lysate to 1.5 mL screw-cap microcentrifuge tube. Label tube with specimen number, date lysed, tech initials.

NOTE: Lysates prepared by this protocol should be labelled with an "S."

- 5. Heat-inactivate the proteinase K by keeping the tubes at 95° C for 15 min. in dry-bath.
- 6. Quench on ice. Store at -20°C in freezer boxes in pre-PCR lab.

3.1.3 PCR Cycling Conditions

1. Prepare lower layer PCR mix as follows:

H ₂ O	10.9 μ l
10X buffer (Promega)	$4.0 \mu l$
$MgCl_2$ (25 mM)	$4.0~\mu$ l
dNTP (AUCG)	16.0 μ l
UNG	$0.1 \mu l$
JW11/B-JW12 (10 μ M each)	5.0 μ l
TOTAL	40.0 μ l

2. Prepare an upper layer PCR mix as follows:

H ₂ O	7.9 μ l
10X buffer (Promega)	1.0 μ l
UNG	0.1 μ l
Tag polymerase	1.0 μ l
TOTAL	10.0 µl

- 3. Aliquot 40 μ L of the lower mix to each tube.
- 4. Add one bead of ampliwax. Number tubes. Place in the heating block at 65°C for up to 5 minutes to melt the wax. Allow to cool.
- 5. Pipet 10 μ L of the upper mix in the tube.
- 6. Add 50 μL of the appropriate specimen lysate to each tube. Do not add positive control template in the pre-PCR lab.
- 7. In the positive control lab add 50 μ L Leishmania lysate of known copy numbers (1, 10 and 100) to the appropriate PCR tubes.
- 8. Immediately carry the reactions to the cycler. Proofread the program before starting. Fill out cycler log book.

CYCLER CONDITIONS

PRIMERS JW	11/B-12 or JW 11i/B-12i
Time Delay fi	le 5'0"
Step Cycles 97° C 55° C 72° C CYCLES	0'15" 1' 0" 1' 0" 10
Step Cycles 92° C 55° C 72° C CYCLES	0'15" 1' 0" 1' 0" 30
SOAK 72° C	

NOTE: products be frozen immediately upon removal from the cycler, unless they can be assayed within 1 h due to the presence of un-denatured UNG and it's ability to degrade PCR products at room temperature and 4° C over time.

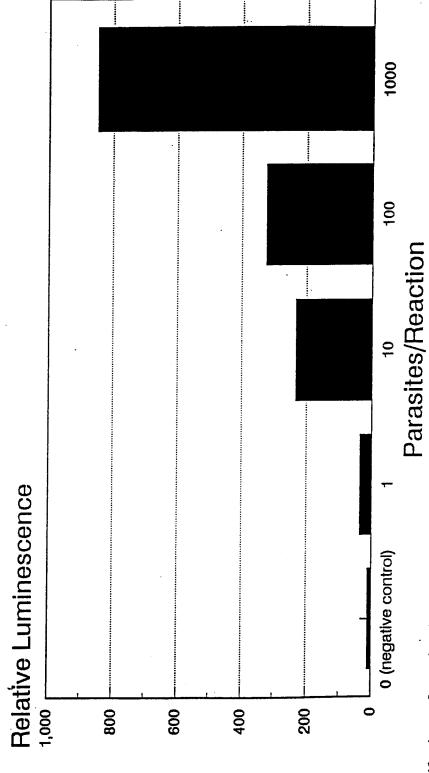
3.2 PCR Product Detection

PCR products were analyzed using the affinity-based hybrid capture assay. We have used two slightly different detection systems with equivalent results. Earlier testings, utilized an Alkaline Phosphatase (AP) labeled specific oligonucleotide and a chemiluminescent substrate (Lumiphos) and later testings used the same oligo labeled with Horseradish Peroxidase (HRP) and a colorimetric substrate (OPD). The sensitivity obtained with either probe system is approximately equivalent. One distinct advantage with using and HRP probe is that the color produced from even 3 to 10 initial copies, after 40 cycles of amplification, is readily discernible by eye. Thus, it becomes possible to interpret results visually, by comparison with standards. Such an approach is acceptable for qualitative, though not quantitative, assays, and may be advantageous for application in developing nations. An example of the sensitivity of this system showing the detection of L. tropica by PCR using the AP-labeled probe and capture plate system is given in Figure 1.

3.2.1 Capture Plate Procedure

For simplicity, only the alkaline phosphatase (AP)-coupled protocol is described here. The primary differences include, obviously, use of a horseradish peroxidase (HRP) labeled oligonucleotide probe, OPD for colorimetric detection, and the use of clear rather than opaque plastic microwells in an ELISA-type plate reader rather than a luminometer. A diagram of the principles of operation of the capture plate is given in Figure 2.

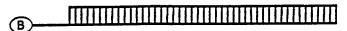
Figure 1: Detection of Leishmania tropica minicircle DNA by PCR



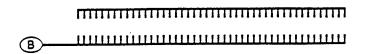
Dilutions of total DNA extracted from L. tropica promastigotes were prepared to correspond to the indicated numbers of parasites per reaction. Amplification waspperformed for 40 cycles using primers designed to amplify 01d World Leishmania, and designated as sequences JWII (5'-CCTATTTTACACCCAACCCCMAGTTT, Where M denotes a mixed amplified sequences by alkaline phosphatase-labelled JWI4 (5'-ATTGAACGGGTTTCTGTATGCATTTTTCGAA) was performed base position: C,T) and JW12 (5'-CGCCTAGGGGCGTTCTGCGAAAMT, where M denotes A,T). Specific detection of the in a 96 well plate, with chemiluminescent detection.

Figure 2: Capture Plate PCR Product Analysis

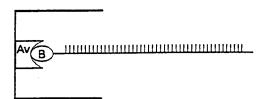
PCR reaction is run using 1 biotinylated primer Specific product is produced



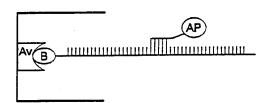
(2) PCR products are denatured by heating



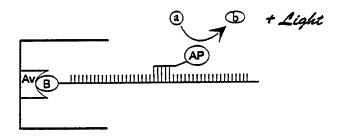
(3) The biotinylated strand is captured in an avidin-coated microplate well



A specific synthetic oligonucleotide coupled to Alkaline Phosphatase is allowed to hybridize to the bound PCR product



A chemiluminescent substrate is added. The breakdown of this substrate produces light, which is detected by a microplate luminometer



- 1. Prepare an avidin-coated and blocked microwell plate according to the following procedure.
 - a. Pipet 120 μ l of 100 g/ml avidin D (Vector Labs) into each well of a high-binding plate (e.g., MaxiSorp, Nunc; Immulon 4, Dynatech). Incubate overnight at ambient temperature.
 - b. Remove the solution, and wash 4 times with Wash Buffer (1% Tween 20 in PBS).
 - c. Pipet 200 μ l of 1% casein (Hammarstein Grade, BDH) in PBS into each well. Incubate for 1 h to overnight at ambient temperature.
 - d. Remove the solution. Store the plate frozen, under which conditions it remains stable for at least several weeks.
- 2. Heat denature PCR products by incubation at 95° C for 5 min., followed by quick-cooling to approximately 4° C.
- 3. Pipet 90 μ l of Hybridization Buffer (1% casein in PBS) containing 1 pmol of AP- or HRP- conjugated probe JW-14 (Synthetic Genetics) into each well.
- 4. Pipet 10 μ l of PCR product into the appropriate well.
- 5. Incubate at 42° C for 20 min. to allow both hybridization and capture.
- 6. Remove the hybridization solution and discard. Wash the plate 4 times with Wash Buffer.
- 7. Pipet 100 μ l LumiPhos into each well. For HRP-labeled probes, 100 μ l of OPD is used as the substrate.
- 8 a. AP-labeled Probes: Incubate at 37° C for 30 min. Read immediately in the ML1000 microplate luminometer (Dynatech).
 - b. HRP-labeled Probes: Incubate at room temperature for 15 min and ${\rm OD_{490}}$ is read in a Molecular Devices ELISA plate reader.

3.2.2 PCR Product Detection by HPLC

1. Inject 30 μ l of each PCR product onto a TSK-DEAE NPR column. For greater precision, an automatic sample injector should be used, such as the ISS-200 (Perkin Elmer).

- 2. The following gradient (requiring approximately 9 minutes per run) is used to separate specific and non-specific PCR products:
 - a. Equilibrate column 5 minutes at 46% A.
 - b. Ramp linearly to 54% A over 0.1 minute following injection.
 - c. Ramp linearly to 60% A over 3.9 minutes.
 - d. Ramp linearly to 75% A over 1 minute.
 - e. Return to 46% A over 0.1 minute.

Buffer A: 25 mM Tris-Cl, pH 9.0, 1.0 M NaCl, 1% acetonitrile Buffer B: 25 mM Tris-Cl, pH 9.0, 1% acetonitrile

- 3. Products are detected by UV absorbance monitoring at 260 nm.
- 4. Integration of chromatographic peaks is by an automatic integrator (Perkin Elmer Nelson Model 1020). Specific peaks are identified by characteristic retention times as compared with strong positives and molecular weight standards (2.5 μ g of 250 μ g/ml HaeIII digest of pBR322).
- 5. If quantitation is desired, data should be plotted as "peak area vs. log initial copy number." A linear plot should be obtained over the range of 30 to 30,000 initial DNA template copies. Linear regression permits the estimation of copy number in unknown samples.

3.3 PCR Primer Selection and Development

The principle area of development for this contract has been in the design and testing of various Leishmania-specific PCR primer and probe combinations. For all designs, the following rational was used. Since the *Leishmania* parasites are suspected to be present in very low numbers in peripheral blood of infected individuals, it was deemed that maximal sensitivity was the key requirement for the assay.

Toward this end, it was reasoned that directing the PCR primers against a "pre-amplified" target was, if possible, the best way to increase signal strength, and hence assay sensitivity, going into

the PCR reactions themselves. Then the reaction conditions would be optimized as described previously in the Introduction to produce the maximum specific yield from each primer set. For these reasons, several PCR primer sets directed against *Leishmania* target sequences that exist in more than one copy per parasite were designed. These included sequences in the ribosomal RNA (rRNA) genes, present in 5-20 copies per organism, nuclear Dihydrofolate Reductase (DHFR) genes, that exist in 2-10 copies per parasite, certain maxicircle sequences, present in 10-100 copies per organism, and several different minicircle sequences.

The minicircle sequences offer the highest possible target number as they are present in 100-10000 copies per organism. One significant problem targeting minicircle sequences, however, is the extreme sequence heterogeneity and the observation that multiple distinct "families" of minicircles exist not only within a given parasite, but also between differing species of *Leishmania*, with the largest differences found between the New World and Old World strains. A diagram showing a comparison of the "conserved" sequence regions of a number of *Leishmania* strains is presented in Figure 3. A summary of the sequences tested is given in Table 1.

The sequences of the individual primers are given in the first section of the table, along with the target of amplification. In the JW11/12 primer set, the sequences indicated in parenthesis are mixed base positions in the synthetic oligonucleotides. The I in several other sequences indicate an inosine (I) base substitution at that position, that allows hybridization with any other base. An NW in the amplification target site indicates those sequences are specific for New World Leishmania strains. The JW and TW series of primers were designed in-house at SRA Technologies utilizing computer software for PCR primer design (Primer Detective, Oligo) and evaluated against potential cross-reactive sequences in Genbank using the Lasergene DNAstar molecular biology software package running on a Mac IIci. Primer set DC 11/12, also

Figure 3: Sequence alignment of conserved region of Leishmania minicircle kDNA

Tuesday, March 30, 1983 546 PM			ih cansensu 6 PM	ıs il								
19				2	a :	B1170 B11074-4479.0						
10	AC	A-AC		C-	A	ATCCCGGGACC	ACCCCCCCCT	ATTITACACCA	ACCCCTAGE	TT-CCGCCCCC	CGAGGGCCAA	<u>AAAATGG</u>
NOB-BIA, SED NOB-GUY, SED NOB-HAI, SED NOB-H											•	100
NOB-BRA, SED NOB-GUY, SED NOB-HAJ, SED NOB-H	AAAC	CCAAAC-	AAAC	GCGACCTCA	AAAGAAAC	AGCCCGAAGC	AGCCGCCCCT	ATTITACACCA	ACCCCCAGT	TTCACCGCCC	IGAGCCGA	AATTCCC
NBB-BLI SED NBB-BLI SED NBB-PER SED NBB-PE	AGGC	AGAGGCC	TAGTTTA	TCGAGTTC-	TAACCTC	AGCGAGAGTGC	GCGGCCCACT	ATATTACACCA	ACCCCTAAT	GTGCACG	GGAGGCCAA	AAAACG-
MBB-PM, SED C-ACC	AGGC	AGAGGCC	TAGTTCC	ACGAGAGC	-TACCCCG	GTCGGGGTGC	CCGCCCACT	ATATTACACCA	ACCCCTAATT	GTGCACG	GGAGGGCAA	AAAACG-
MBB-PBI, SED												
NOB-PER.SEC	7000	מהאממממ	ACTITIO	TICAATICC	-TAGCCCA	TCCAGAGTGC	CCCCCCACT	ATATTACACCA	ACCCCTAATT	GTGCACGO	GGAGGCCAA	AAAACG-
SCH-AET. 52 SCH-AET. 52 SCH-AET. 52 SCH-COI. 5EQ SCH-MI. 5EQ SCH-	7000	7C7CCCC	ACATTTT	AATGATCC	-TAACCCG	GTCGGGGTGC	GCGCCCCACT	ATATTACACCA	ACCCCTAATT	GTGCACGG	GGAGGCCAA	AAAACG-
CA		A-A			/	GCCGGGGGAG	GGCCAGCCCT	ATTTTACACCA	ACCCCTAGTT	TTCCCCC	AAAATCGTA	AAAATAG
SCH-CON. SEQ						TCCTCGAACC	ACCCCGGCCT	ATTITACACCA	ACCCCCAGTT	TGACGCCTCC	GACCCCCAC	AAAATGC
SCH-NDI. SED						TCCCCGGACC	ACCCGGCCCT	ATTTTACACCA	ACCCCCAGTI	TGCCGCCTCC	:GAG-CCCA-A	AAAATGG
SCH-HAJ. SEQ C-A		_				TCCAGCCACC	ACCCGGCCCT.	ATTTTACACCA	ACCCCCAGTT	TCCCGCCTC	GGGACCCGA:	TTTTTGG
CA	<u> </u>	r-A				TCCCCCGTCC	ATACGGCCCT.	ATTTTACACCA	ACCCCTAGTI	TCCCACCCTC	GAG-GCCAC	AAA-TGC
NBB-ANA.SEQ 10 10 13 140 150 160 170 180 190	!	-A			·	TTCCCGGACC	ACCCGGCCCT.	ATTTTACACCA	ACCCCCAGTI	TGCAGCCTCC	GAG-CCCAC	AAAATGG
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110 120 130 140 150 160 170 180 190	TT	GATITI	CGGGGAAT	TTTTGAACG	G-GGTTTC!	GCATGCCATT	TTTCGGTTTT	CGCAGAACGCC	CCTACCCGGA	GGGCCA-TAA	<u> 77 – KA-TTTA</u>	rccccc
NDB-BRA, SEC TOATTTTGGGGGATTTTTGAACGG-GGTTTCTGTATCCATTTTCGGTTTTGGGAACGCCCTACCCAGAGG-CATGTGG NDB-MAJ. SEC TOATTTTGGGGCATTTTTGAACGG-GGTTTCTGTATCCATTTTTGAATTTTGAACGCCCTACCCAGAGG-CATGTGG NDB-PAN. SEC TOATTTTGGGCCATATTTTGAACGG-GGTTTCTGTATCCATTTTTGGATTTTGCAGAACGCCCCTACCCAGAGG-CA									170	180	190	200
NDB-BRA, SEC TOATTTTGGGGGATTTTTGAACGG-GGTTTCTGTATCCATTTTCGGTTTTGGGAACGCCCTACCCAGAGG-CATGTGG NDB-MAJ. SEC TOATTTTGGGGCATTTTTGAACGG-GGTTTCTGTATCCATTTTTGAATTTTGAACGCCCTACCCAGAGG-CATGTGG NDB-PAN. SEC TOATTTTGGGCCATATTTTGAACGG-GGTTTCTGTATCCATTTTTGGATTTTGCAGAACGCCCCTACCCAGAGG-CA	ATT	GAATTO	CCCGAAAA	TATGACG	G-GGTTTCT	GCAC-CCATT	TTTGCCATTT	TG-AGAACGCC	CCTCCCCCAC	GGGC-AGAAA	GTTTGGG	
NDB-BAM. SEQ NDB-BAM. SEQ SCH-ADL. SEQ NDB-BAM. SEQ SCH-ADL. SEQ SCH-A	ATT	GAATTT	TGGGGGAT	TITTGAACG	G-GGTTTCT	GTATGCCATT	TTTCGGTTTT	CGCAGAACGCC	CCTACCCAGA	GGCA	T	TCGGGG :
NDB-HAJ. SEQ NDB-PR. SEQ NDB-P	TTT	GATTTT	CGGGAGAT	TTTTGAACG	G-GGTTTCT	GTATGCCAAA	AACGCGATTT	TGCAGAACGCC	CCTACCCAGA	GGCA	T	TCGGGT 1
NDB-PAN. SEC NDB-PAN. SEC NDB-PAN. SEC SCH-ADL. SEC SCH-A	TTT	CAATTTT	CGGCCAAA	LAATCGAACG	G-GGTTTCI	GCANCCCATT	TTTCGAATTT	CCAGAACGCC	CCTACCCACG	GGACCAGAAA	AGTTTGA	AAT :
NDB-PER. SEQ SCH-ADL. SEQ SCH-A	TTT	GATTTT	CGGGCTAT	TTTTGAACG	G-GGTTTCT	GTATGCCATT	TTTCCGTTTT	CCAGAACGCC	CCTACCCAGA	GGCA	TC	TCGGGT 1
SCH-ADL. SEQ SCH-ADL. SEQ SCH-CON. SEQ SCH-CON. SEQ SCH-CON. SEQ SCH-CON. SEQ SCH-DIN. SEQ SCH-TRO. SEQ SCH-T	TIT	GATTIT	CGGGCTAI	TTTTGAACG	G-GGTTTCT	GTATGCCATT	TTTGCGATTT	こうころしんこうこう	CTACCCAGA	GGCA	TC	TCGGGT 1
SCH-AET. SEQ SCH-CON. SEQ SCH-CON. SEQ SCH-CON. SEQ SCH-TITTITGGCGGATTITTIGAACGG-GATTITTICCACCC-ATTITTICGATTITCGCAGAGGCCCTACCCGGAGGGCCATAGATTATATTICACCCGC SCH-DN. SEQ SCH-TRO. SEQ SCH-TRO	TTT	GATTTT	TGGCAAAT	TAT-GAACG	G-GGTTTCT	GCATGC-ATT	PTTCGGTTTT-	-GCAGAACGCC	CCTACCTGAG	GGACCTAA	AAAGAAAGCC	GGGGGA 3
SCH-CON. SEQ SCH-DN. SEQ SCH-DN. SEQ SCH-DN. SEQ SCH-MAJ. SEQ SCH-TRO.	TIT	ATTTTT	GGCGGCTT	TTTTGAACG	GAGGTTTCT	GCACCATT	PTTCCATTTT	CCAGAACGCC	CTACCCGAA	GGGCTACTAG	GTTTCAATCC	TCGAAC. 1
SCH-DON. SEQ SCH-TRO. SEQ SCH-T	TTT	ATTTTT	GGCCGAAT	TAT-GAACG	G-GATTTCT	GCACCC-ATT	TTCGATTTT	:GCAGAACGCC	CTACCCGGA	GGGCCACTAA	ATTICAATCO	CCCGGAC 1
SCH-MAJ. SEQ CATTTTCGGGAAAATTAT-GAACGG-GATTTCTGTATGC-ATTTTTCGAGAAACGCCCCCCCCCC	TTT	ATTTTT	GGCCGATT	TTTTGAACG	G-GATTICI	GCACCC-ATT	TTCGATTTT	GCAGAACGCC	CTACCCGAA	GGACCAGTAA	AGTTATTTCC	AGCCAC I
SCH-TRO. SEQ CATTITICGCCCAAAAAT-GAACGG-GATTTCTGTATGC-ATTITITICGAATTTCGCAGAACGCCCCTACCTGGAGGGCTACTTACACCAGGGCCAATTCCCCC CGTCCGCCCCTATTTTACACCAACCCCCAGTTTCCCGCC	TIT	ATTTTT	GGGGAAAT	TAT-GAACG	G-GATTTCT	GCACCC-ATT	MICACITITO	CCAGAACGCC	CTACCCGCC	ここんここんほみみん	AGTITAATCC	CCCGTC 1
CGTCCGGCCCTATTTTACACCAACCCCCAGTTTGCGCC	TTT	ATTTTC	CGCCCAAA	AAT-GAACG	G-GATITCT	GTATGC-ATT	TTCGAATTY	CCAGAACGCC	CTACCCGGA	GGCTACTAC	ATGCCAATTC	CCGGAC 1
210 220 230 240 250 260 270 280 290 NDB-AMA. SEQ NDB-BRA. SEQ SGTACGATTITGACTCATTTTTATAAAGAGGCCTAGTTTCACGAGGCTAGCCGGGCC NDB-BRA. SEQ NDB-BRA. SEQ SGTACGATTITGACTCATTTTTATAA	-	(7-1): A	Namadalan in 1828	YAA KOOSEOONIA 4	and the state of t	d gardina		ne us sema	the same a	none to	Park draw Help	eti see si sa
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NDB-AMA. SEQ NDB-BRA. SEQ NDB-BRA. SEQ NDB-GUY. SEQ GTACGATTITCG-CCCATTTITATAAA-GAGGCCTAGTTTATCGAGTTCTAACCTCAGCGGGGGGCCCCCCCCCACACCACCCCG-GCCACCCCCAGAGAATTTAATTCCCCGACC			210	220	230	240	250	260	270	280	290	300
NDB-BRA. SEQ NDB-GUY. SEQ GGTACGATTITICG-CCCATTTITATAAAGGGCCTAGGTTCACGGAGAGTCCGCGGCCC NDB-MAJ. SEQ NDB-PAN. SEQ SGTACGATTITICACCTAACTCCGACACCACCACCACCACCACCACCACCACCACCACCAC	-ccc	ccc	TCCATTT	r	-TCAG	GCCAAA	ACCCARACAA			AAACAAGCCC	GAAGCAGCC	G-CCCN 2
NDB-GUY. SEQ GGTACGATTITGGACTCATTTITATAAA-AGAGGCTAGTTCCACGAGAGCTAGCCCGAGTCGGGGGCC NDB-MAJ. SEQ NDB-PAN. SEQ GGTACGATTITGAGCTAATTTITGATA												
NDB-MAJ. SEQ NDB-PAN. SEQ GGTACGATTITGAGTAATTTITGATA												
NDB-PAN. SEQ NDB-PER. SEQ SCH-ADL. SEQ SCH-CON. SEQ SCH-CON. SEQ SCH-DON. SEQ SCH-TRO. SEQ SCH-T												
NDB-PER. SEQ SCH-ADL. SEQ SCH-ADL. SEQ SCH-ADL. SEQ SCH-CON. SEQ SCH-CON. SEQ SCH-MAI. SEQ SCH-TRO. SEQ SCH-T												
SCH-AET. SEQ CACCCCGGCCTATTTTACACCAACCCCCAGTTTGACGCCTCC CACCCGGCCCTATTTTACACCAACCCCCAGTTTGC-CCC CACCCGGCCCTATTTTACACCAACCCCCAGTTTGC-CCCC CACCCGGCCCTATTTTACACCAACCCCCAGTTTGCCGCCCCA CATACGGCCCTATTTTACACCAACCCCCAGTTTGCAGCCCCCAGTTTCCGCCCCAAAAATGAACGGGATTTCTGTATGCA CATATTTACA 310 SDB-AMA. SEQ CTATATTACA												
SCH-CON. SEQ CACCCGGCCCTATTTTACACCAACCCCCAGTTTGC	:CAG	GCCAGC	CCTATTTI	CACACCAACC	CCTAGTTT	CC-CCGAAAA	TCGTANAAAA	PAGCGATTTTT	GGCAAATTAT	CAACGGGGTT	TCTGCATGC	ATTTTT 20
SCH-DON. SEQ CACCCGGCCCTATTTTACACCAACCCCCAGTTTCCCGCCTCA CATAGGGCCCTATTTTACACCAACCCCCAGTTTCCCGCCTCA CACCCGGCCCTATTTTACACCAACCCCCAGTTTCCAGCCTCCGAGCCCAAAAATGCATTTTCCGCCCAAAAATGAACGGGATTCTGTATGCA CXATXTTACA J10 IDB-MAA. SEQ CTATATTACA IDB-BRA. SEQ CTATATTACA IDB-BRA. SEQ CTATATTACA IDB-BRA. SEQ CTATATTACA IDB-BRA. SEQ CTATATTACA IDB-PAN. SEQ CTATATTACA CTATATTACA IDB-PAN. SEQ CTATATTACA	:CCG	ACCCCGG	CCTATTTI	PACACCAACC	CCCAGTTTC	ACGCCTCC						2:
SCH-MAJ. SEQ CATACGGCCCTATTTTACACCAACCCCTAGTTT CACCCGGCCCTATTTTACACCAACCCCCAGTTTGCAGCCTCCGAGCCCAAAAATGGCATTTTCCGCCCAAAAATGAACGGGATTTCTGTATGCA CXATXTTACA 310 NDB-AMA. SEQ CTATATTACA	.CGG	CCCGGC	CCTATTTI	CACACCAACC	CCCAGTTTC	::C						3 20
CACCCGGCCCTATTTTACACCAACCCCCAGTTTGCAGCCTCCGAGCCCACAAAATGGCATTTTCCGCCCAAAAATGAACGGGATTTCTGTATGCA CXATXTTACA 310 VDB-AMA.SEQ CTATATTTACA CTATATTACA												21
CXATXTTACA 310 VDB-AMA.SEQ CTATATTACA VDB-BRA.SEQ CTATATTACA	CGG	TACGGC	CCTATITI	ACACCAACC	CCTAGTTT-		-CCCXC		-CCT			20
CXATXTTACA 310 NDB-AMA.SEQ CTATATTACA NDB-BRA.SEQ CTATATTACA UDB-MAJ.SEQ CTATATTACA NDB-MAJ.SEQ CTATATTACA NDB-PAN.SEQ CTATATTACA NDB-PER.SEQ CTATATTACA CTATATTACA CTATATTACA	CGG.	rccceec	CCTATTTT	'ACACCAACC	CCCAGTTTG	CAGCCTCCGA	GCCCACAAAA:	rggcattttcc	GCCCAAAAAT	GAACGGGATT	TCTGTATGC	. 26
310 NDB-AMA.SEQ CTATATTACA NDB-BRA.SEQ CTATATTACA NDB-MAJ.SEQ CTATATTACA NDB-MAJ.SEQ CTATATTACA NDB-PAN.SEQ CTATATTACA NDB-PAN.SEQ CTATATTACA NDB-PER.SEQ CTATATTACA	7 k 7 % p. m	ryspanis (d), and	241									
310 NDB-AMA.SEQ CTATTTTACA NDB-BRA.SEQ CTATATTACA NDB-MAJ.SEQ CTATATTACA NDB-MAJ.SEQATTTTACA NDB-PRA.SEQ CTATATTACA NDB-PRA.SEQ CTATATTACA NDB-PRA.SEQ CTATATTACA	XTT	ATXTTA	CA									
IDB-AMA.SEQ CTATATTACA IDB-GUY.SEQ CTATATTACA IDB-MAJ.SEQ -ATTITACA IDB-PAN.SEQ CTATATTACA IDB-PER.SEQ CTATATTACA IDB-PER.SEQ CTATATTACA			310									
IDB-BRA.SEQ CTATATTACA IDB-GUY.SEQ CTATATTACA IDB-MAJ.SEQATTITACA IDB-PAN.SEQ CTATATTACA IDB-PER.SEQ CTATATTACA	ملحلت											26
IDB-GUY.SEQ CTATATTACA IDB-MAJ.SEQATTITACA IDB-PAN.SEQ CTATATTACA IDB-PAR.SEQ CTATATTACA IDB-PER.SEQ CTATATTACA												26
IDB-MAJ.SEQATTITACA IDB-PAN.SEQ CTATATTACA IDB-PER.SEQ CTATATTACA												26
DB-PAN.SEQ CTATATTACA DB-PER.SEQ CTATATTACA												26
IDB-PER. SEQ CTATATTACA												26
												26
												27
CH-AET. SEO												21
ch-con.seo												20
CH-DON.SEQ												21
CCH-MAJ.SEO												20
CH-TRO.SEQ												26

Published sequences of Leishmania minicircle conserved regions were compared using LaserGene (DNAStar, LTD), generating the underlined consensus sequence. The sequences designated "NDB" are the complementary strands to those reported by De Bruijn, et al (11); those designated "SCH" have been reported by Schoone, et al (9). The following abbreviations were used to refer to species and subspecies: AMA: amazonensis; BRA: braziliensis; GUY: guyanensis; MAJ: major; PAN: panamensis; PER: peruviana; ADL: adleri; AET: aethopica; CON: Schoone consensus sequence; DON: donovani.

Table 1. Sequences of Leishmania Specific PCR Primers.

Primer Name	Primer Sequences	Primer Location
JW11	CCTATTTTACACCAACCCC (C/T) AGTTT	minicircle
JW12	CGGGTAGGGGCGTTCTGCGAAA (A/T) T	minicircle
TW01	GCGTCTCCGACCCTCATCTTCAAGG	DHFR (nuclear)
TW02	GACACCCTCCTCTCTATACGGC	DHFR (nuclear)
TW03	ATTGAAATAATAAAAGGTTCGAGC	maxicircle
TW04	AATTACAAATAATAGATCCTTGCG	maxicircle
JW16	GAATTCGATTTTCGCAGAACGCCCCT'	minicircle
JW17	GAATTCAAACTGGGGGTTGGTGTAAAAT	minicircle
R222	TATTGGAGATTATGGAGCTG	rRNA gene
R332	GGCCGGTAAAGGCCGAATAG	rRNA gene
LK1S	CCTATTTTACACCAACCCC	minicircle
LK2R	GGGTAGGGGCGTTCTGCGA	minicircle
LS1	GGGGTTGGTAAAATAG	minicircle
LS2	CCAGTTTCCCGCCCCG	minicircle
B1	GGGGTTGGTGATATAGTGG	minicircle NW
B2	CTAATTGTGCACGGGGAGG	minicircle NW
B3	CCCGACATGCCTCTGGGTAG	minicircle NW
PROBE P1	CAGAAACCCCGTTCAAAAAT	minicircle NW
JW-11-i	CCTATTTTACACCAACCCCIAGTTT	minicircle
JW-12-i	CGGGTAGGGGCGTTCTGCGAAAIT	minicircle
C-JW11-1	CCTATITTACACCAACCCCIAITTI	minicircle
C-JW11-2	CCTATITTACACCAACCCCIAITT	minicircle
C-JW11-3	CCTATITTACACCAACCCCIAI	minicircle
C-JW12-1	CGGGIAGGGCGTTCTGCGAAAI	minicircle
C-JW12-2	CGGGTAGGGCGTTCTGCGAAAA	minicircle
	ATTGAACGGGITTTCTGTATICITTTTTCGAA	minicircle
	ATTIGAACGGGITTTCTGIAIICIATTTTTIGAA	minicircle
C-JW14-3	GAACGGGITTTCTGIAIICIATTTTCGITTTT	minicircle
JW-21	TGAACGGGITTTCTGIAIICATTT	minicircle
	GGGGTTGGTGAAAATAGGICIG	minicircle
	CATTITTCIIITTTCGCAGAACGCCCCTACC	minicircle
DC-11	CCCTATTTTACACCAACCCCCAGTTT	minicircle
DC-12	CGGGTAGGGGCGTTCTGCGAAA T T	minicircle
DC-LT-1	ACCACCCGCCCTATTTTA	minicircle
DC-LT-2	ATGTAGTAGCCCTCCGGGT	minicircle

designed in-house at SRA, is similar to JW 11/12 primer set except that the mixed base positions (bold face) were a perfect match for L. tropica kDNA sequence. The sources of the other primer sequences are as follows: R222/332 (ref. 9); LK1S/2R (Personal communication from G. van Eys to Maj. E. Nuzum) and LS1/LS2 (ref. 10).

3.3.1 PCR primer sets against Old World species of Leishmania

During Phase I of this project, we tested the sensitivities of JW 11/12 primer set against the strains of Old World Leishmania. Table 2 indicates the detection limits of primer set JW 11/12 when compared against control strains of Leishmania parasites.

Table 2: Detection of various Leishmania species using the minicircle-specific PCR primers JW 11/12.

Species of <i>Leishmania</i>	# <i>Leishmania</i> Detected with (JW 11/12)					
	1000	100	10	1		
746 (L. panmensis)	+	+				
842 (L. mexicana)	+					
1031 (L. guyanensis)	+	+	+	+		
1041 (L. major)	+					
1063 (L. t <i>ro</i> pi <i>c</i> a)	+	+	+	+		
1077 (L. major)	+	+	+			
2053 (L. donovani)	+	+				
669 (L. amazonensis)	+					
746 (L. panamensis)	+	+	+			
1003 (L. braziliensis)	+	+				
2086a (L. <i>braziliensis</i>)	+	+	+			
2086b <i>(L. braziliensis)</i>	+ .	+	+			

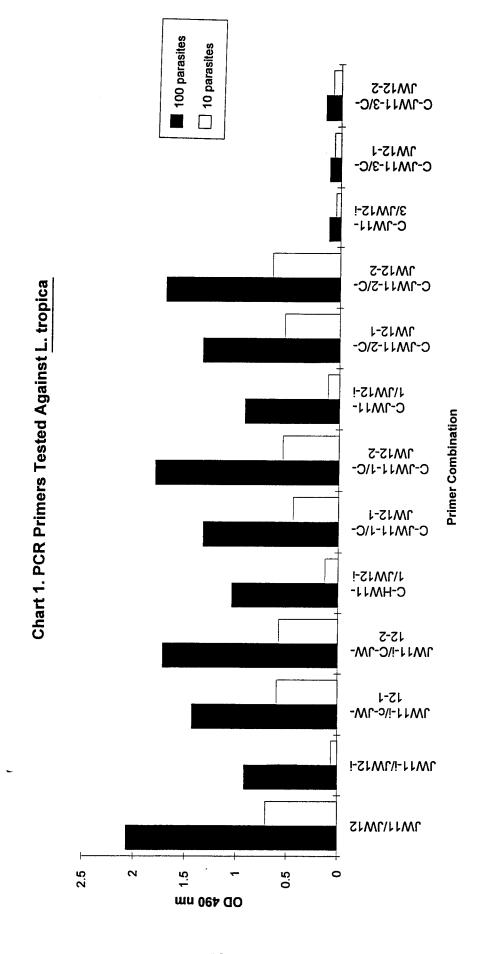
Note: A plus (+) indicates that signal at least 5-fold above assay background was consistently obtained against that species, with lower numbers indicating greater sensitivity)

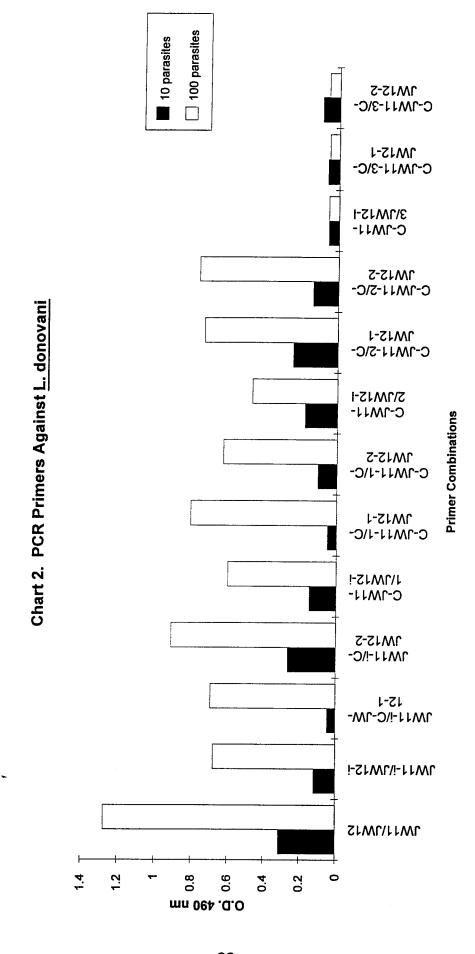
The sensitivity of various combinations of inosine-substituted primer sets against *L. tropica* and *L. donovani* is presented in Charts 1 and 2, respectively. The sensitivity of JW 11/12 and JW 11i/12i primer sets was retested during the Phase II of the project. Two separate sets of *L. tropica* cultures (stock 1063/5-24-94 and a stock of three cultures (6-3-94) grown at WRAIR were used for this testing. Chart 3 summarizes the results of this testing. The results indicate a sensitivity limit of 10 parasites for both primer sets against *L. tropica*. Table 3 summarizes the results of testing various combinations of primer sets against *L. tropica*.

Table 3: Sensitivity of various primer sets against L. tropica

Primer Combinations	Detection Limits on L. tropica
JW11/12	Approximately 1-100 parasites
TW03/04	Approximately 100 parasites
TW01/02	Greater than 1000 parasites
R222/332	Greater than 1000 parasites
JW16/17	Greater than 1000 parasites
LK1S/2R	Greater than 1000 parasites
LS1/2	Greater than 1000 parasites
B1/B2	Greater than 1000 parasites
JW11i/JW12i	Approximately 1-100 parasites
JW21/JW22	Approximately 100 parasites
DC11/12	Approximately 100 parasites
DC-LT-1/DC-LT-2	Approximately 1 parasite

Similar testing was done with other Old World species of *Leishmania* during the course of this contract. The results are presented in Charts 4 and 5 for *L. donovani* and in Charts 6 and 7, for *L. chagasi*. These combinations were tested using our optimized PCR protocols and the HRP-coupled capture plate assay.



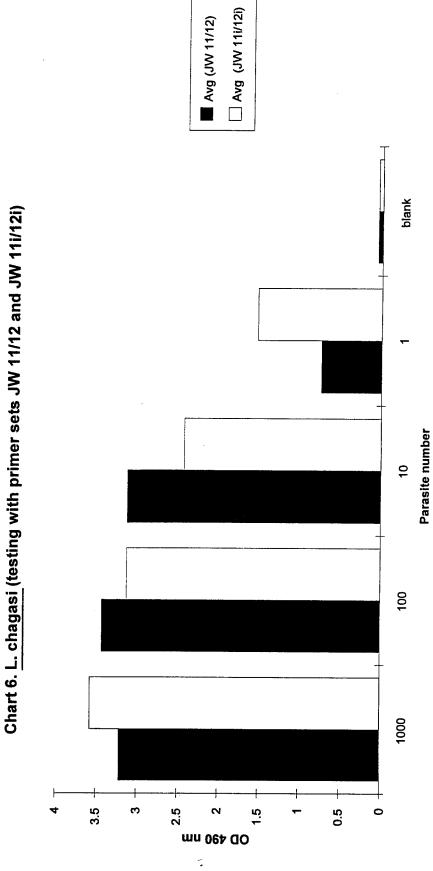


Avg-blank (cult #2) Avg-blank (cult #1) Avg-blank (cult #3) -0.5 0 Chart 3. L. tropica (6/3/94) Testing of cultures with JW 11i/12i primer set 0.5 ~ A State of the Sta 2.5 က 2 ဖ 4.000 3.500 3.000 2.500 2.000 1.500 1.000 0.500 0.000 -0.500 mn 004 GO

Log Parasite Number

Average-blank 11i/12i Average-blank 11/12 Chart 4. L. donovani (Stock 1073) Testing of JW 11/12 and JW 11i/12i primer sets ကု 0 Log Parasite Number ဖ OD 490 nm 2.000 1.500 3.500 3.000 0.500 2.500 1.000 0.000

Avg-blank JW11i/12i Avg-blank JW11/12 blank Chart 5. L. donovani (stock 7-13-94) Testing with primer sets JW 11/12 and JW 11i/12i Ψ, -0.5 0 0.5 Log Parasite Number 5. 2 က ις, ဖ **OD 490 nm** 2.000 1.500 3.500 3.000 2.500 1.000 0.500 0.000



Avg-blank JW11i/12i Avg-blank JW11/12 blank Chart 7. L. chagasi (stock 7-13-94) Testing with primer sets JW 11/12 and JW 11i/12i 4 -0.5 0 0.5 8 ß ဖ 2.500 3.000 **mn 004 d0** 1.500 2.000 1.000 0.500 0.000

Log Parasite Number

To date, the most consistent and sensitive primer sets against the strains of old world Leishmanias examined are JW 11/12 and JW 11i/12i. The sensitivity limit is less than one parasite, for L. donovani and L. chagasi. However for L. tropica, the detection limit is one parasite with the newly tested primer set, DC-LT-1 and DC-LT-2; and it varies from 1-100 parasites with JW 11/12 and JW 11i/12i primer sets. As can be readily seen from the previous tables and charts, the inosine substituted primer set JW 11i/12i, seem to provide slightly higher sensitivity against control samples from L. donovani (presumably the causative agent of Kala-Azar) and L. chagasi. Their sensitivity, however remains the same, particularly against L. tropica. Other primer sets, except DC-LT-1/DC-LT-2 (a primer set designed in-house with sequences optimized to L. tropica), that have been tested to date are significantly less sensitive when tested against L. tropica parasites (Table 3).

3.3.2 PCR Primers with Multiple Inosine Substitutions for New World species of Leishmania

During the course of this study, a number of samples from South and Central America, both as controls and as patients with suspicious disease, were provided for testing. It became readily obvious when testing against control strains provided by MAJ M. Grogl that the sensitivity of the basic JW11/12 PCR primer set was much better against Old World than the New World strains. It was the opinion of the Leishmania Working Group that in addition to the original requirement for a PCR based detection test that was sensitive against the Old World strains prevalent in South West Asia, it would be useful to have a test usable against at least some of the New World strains of Leishmania for use with patient samples obtained from service personnel stationed in South and Central America. Toward these ends, it was decided to try designing PCR primers with multiple inosine substitutions at those DNA base positions that differ between characterized New and Old World Leishmania strains (see Figure 3).

A collection of inosine-substituted primers based on the most sensitive PCR primer set tested to date (JW11/12) was developed and tested in various pairwise combinations. The results of these tests for L. braziliensis comparing the pairwise combinations of these primers are given in Chart 8. These combinations were tested using our optimized PCR protocol and the HRP-coupled capture plate assay against 10 and 100 parasite equivalents of parasite DNA for L. braziliensis. Higher signal indicates greater PCR yield, and therefore, greater sensitivity of that particular PCR primer combination against the species of Leishmania in question. Based on the results obtained from this experiment, primer pair combinations were retested during Phase II of this contract, against two New World species of Leishmania, namely L. braziliensis and L. panamensis. All primer combinations efficiently detected one parasite under the conditions used for testing. Two primer sets, c-JW11-3/c-JW12-1 and c-JW11-3/c-JW12-2, showed a sensitivity, 2- to 5-fold higher than others (Charts 9 and 10). The sequences of the second primer set is compared below with the original JW 11/12 primer set.

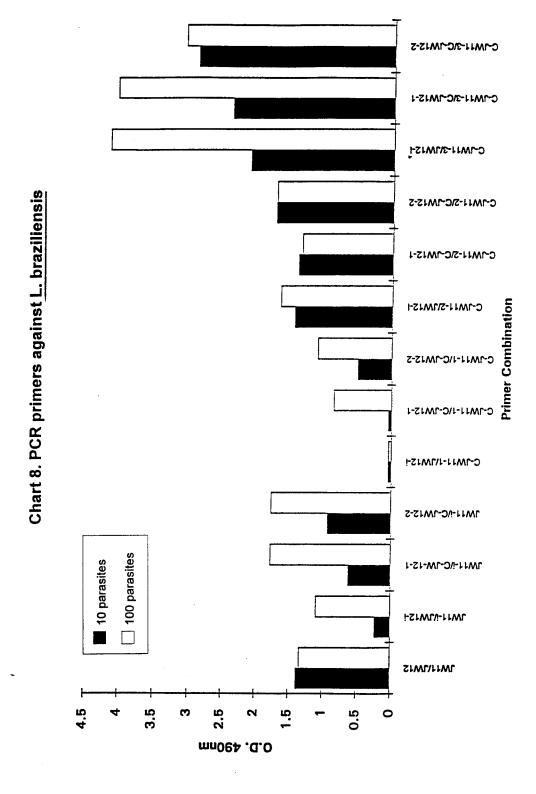
JW-11 CCTATTTTACACCAACCCC (A/T) AGTTT

JW-12 CGGGTAGGGGCGTTCTGCGAAA (A/T) T

C-JW-11-3 CCTATTTTACACCAACCCCTAI

JW-12-2 CGGGTAGGGGCGTTCTGCGAAAA

The sequence differences are indicated in *bold italics*. The A/T indicates a mixed base composition at this position. Using this primer set, while not sufficiently different to be a truely independent second set, PCR conditions were reoptimized for *L. braziliensis*, as a representative of New World species of *Leishmania*. The reoptimized parameters included the testing of annealing temperatures of the primers and the concentrations of magnesium ions in the PCR mix. The results of three typical experiments are presented in Table 4. Additionally, a comparison of the standard PCR conditions and conditions optimized for *L. braziliensis* is presented



☐ Avg-blank c-JW11-3/c-JW12-2 Avg-blank c-JW11-3/c-JW12-1 Avg-blank c-JW11-3/JW12i blank Avg-blank JW11i/12i Avg-blank JW11/12 4 Chart 9. L. braziliensis (Testing of primer combinations) 0 2 The second secon က 2 mn 094 dO 1.500 4.000 3.500 2.500 3.000 -0.500 1.000 0.500 0.000

Avg-blank c-JW11-3/c-JW12-2 ■ Avg-blank c-JW11-3/c-JW12-1 Avg-blank c-JW11-3/JW12i blank Avg-blank JW11i/12i Avg-blank JW11/12 7 Chart 10. L. panamensis (Testing primer combinations) 0 ~ က ß 4.500 3.500 -0.500 4.000 3.000 2.500 2.000 1.500 1.000 0.500 0.000 mn 094 dO

Log Parasite Number

in Chart 11. Further HPLC analysis of the PCR products of this optimization is needed to confirm the absence of any non-specific amplification products.

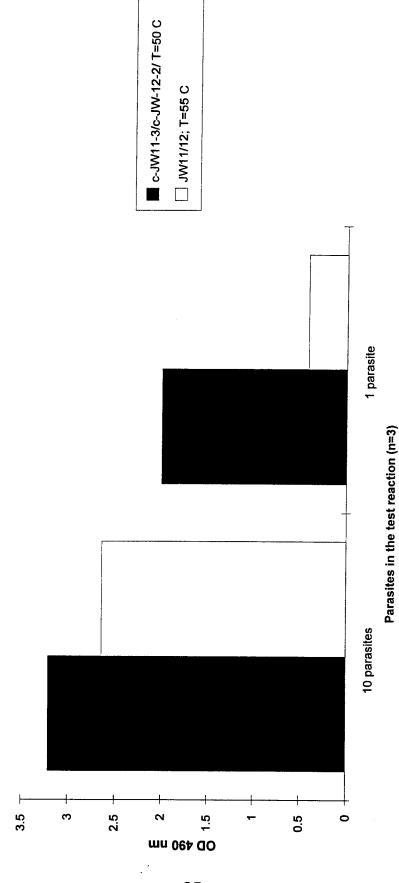
Table 4. Results of PCR optimization for L. braziliensis (the values represent colorimetric readout (A_{490}) from HRP capture plate assay of PCR products)

Annealing temperature	45° C	50° C	55° C	60° C
10 parasites (Test 1)	2.726	3.046	2.679	0.430
Annealing temperature	45° C	48° C	50° C	53° C
10 parasites (Test 2)	2.423	2.593	2.235	1.079
1 parasite	0.526	0.940	0.999	0.430
[T			
MgCl ₂ concentration	1.5 mM	2.0 mM	2.5 mM	3.0 mM
MgCl ₂ concentration 10 parasites (Test 3)	1.5 mM 2.768		2.5 mM 2.792	3.0 mM 2.698
		2.739		

Briefly, the more conservatively inosine-substituted primers give at least equivalent sensitivity to the JW 11/12 primer set for L. tropica, L chagasi and L. donovani. Some of the more extensively inosine-substituted primers give increased sensitivity against the New World strain L. braziliensis, but show reduced signal when tested against the Old World strains of L. tropica and L. donovani. Based on these results, it was decided that since sensitivity against the Old World strains was of primary importance, the use of the more extensively inosine-substituted primers (eg. C-JW11-3/C-JW12-2) would be restricted to samples with origins in geographic regions where New World stains of Leishmania predominate.

Another idea for an additional primer set was explored, using JW-21/JW-22 primer set and JW-24 probe (modification of the conserved

Chart 11. L. braziliensis (comparison of standard vs optimized PCR conditions)



regions of of the original JW-11/12 primer set and JW-14 probe; Table 2). Unfortunately, the results of such testings were disappointing in terms of sensitivity when compared to the basic JW 11/12 primer set.

3.4 Decatenation of Leishmania kDNA minicircles

Additional experiments were done to further increase the sensitivity of the PCR detection test. One set of experiments proposed in SRA's response to the contract proposal was the use of procedures to "decatenate" the *Leishmania* kinetoplast DNA, theoretically releasing most of the minicircle and maxicircle DNA fragments into solution. This could potentially increase the chance of detection of *Leishmania* parasites by making more target DNA templates accessible for PCR. After evaluating a number of potential treatments our results are reported below.

3.4.1 Decatenation Protocol

Protocol 1

Equal quantities of *Leishmania* parasite lysates were used for each treatment. Controls were lysates stored at -20° C. Treatments included;

- 1. Incubation at 37° C overnight.
- 2. Digestion with the restriction enzymes DraI, EcoRI, or BamHI at 37° C overnight using 20-50 units of enzyme. These enzymes have each been reported to introduce a single specific cut in some minicircles, linearizing the DNA.
- 3. Treatment with Topoisomerase II (20 units) overnight at 37° C. Topoisomerase II introduces double stranded transient breaks in DNA allowing decatenation of concatenated circles and reduction of supercoiling induced torsional strain in circular molecules, facilitating denaturation of the circular DNA.
- 4. Limited digestion with an inorganic Iron nuclease to introduce random double stranded breaks in all DNA present in the reaction.

5. Following treatments, each lysate was serially diluted 10 fold to give a range of 10 to 0.001 parasite equivalents, and subjected to PCR analysis as described.

<u>Protocol 2</u> (tested for *L. tropica*)

Total DNA from L. tropica was prepared by extracting lysate of the parasites with phenol:chloroform and precipitation with ethanol.

- 1. Equal quantities of total DNA and cell lysates representing 1000 parasites were treated with 10 Units of Topoisomerase II (Topogen, Inc.) and 10-20 Units of restriction enzyme XhoI (this enzyme works better than other restriction enzymes and some times even better than Topoisomerase II for unrelated purified kDNA)
- 2. The samples treated with Topoisomerase were incubated for 60 min, 90 min and 120 minutes at 37° C and those treated with XhoI were incubated for 1-2 h at 37° C.
- 3. The reaction was stopped by heat treatment at 95° C for 5 minutes. Serial 10-fold dilutions (1000 0.1 parasites) were prepared and subjected for routine PCR amplification using JW 11i/12i primer set. Following amplification, the samples were detected using JW14-HRP probe as described.
- 4. Undigested DNA and lysate controls were also included with the assay.

3.4.2 Results of the Decatenation Experiments

Unfortunately, multiple experiments failed to show any significant difference in PCR product yield, and hence sensitivity of the reaction, when compared to untreated controls with the equivalent amounts of DNA or lysate in the reaction mix. The results of all tests were within +/- 20% of the signal produced by the untreated controls at each dilution point. A reproducible dose-response curve was not always obtained upon repeated testing to confirm the effect of decatenation (data not shown). Based on these results, we believe further experimentation along these lines in not currently warranted.

3.5. Construction of copy control plasmid for L. tropica:

In view of the problems encountered in decatenation of kDNA, either from the total genomic DNA or from the specimen lysates, it was considered important to construct a copy control plasmid to test the sensitivity of the PCR assay developed for Leishmania. Such a copy number control not only would determine the analytical sensitivity of the assay, as copy number per reaction, rather than parasite number per reaction, but also would elucidate the meaning of weakly positive reactions. The best control would be derived from the strain(s) of interest, especially, L. tropica, where the sensitivity of the assay varies from 1 to 100 parasites. The primers bordering the constant regions, outside the JW 11/12 primer binding regions, were chosen for this purpose. The sequence of two such primers and their location in relation to JW 11/12 is presented below:

```
DC-LT-1: 5'-ACCACCCGGCCCTATTTTA-3'
::::::::
5'-CCTATTTTACACCAACCCC(C/T)AGTTT-3' (JW 11)

DC-LT-2: 5'-ATGTAGTAGCCCTCCGGGT-3'
:::::
5'-CGGGTAGGGGCGTTCTGCGAAA(A/T)T-3' (JW 12)
```

Primers DC-LT-1 and DC-LT-2 are up stream of JW 11 and JW 12 primers, repectively, but overlap 5-10 nucletides towards their 3' end with the 5' ends of JW 11/12. Therefore, the amplicons generated with these primers are slightly larger than JW 11/12 amplicons and would carry the original JW 11/12 sequences for further amplification.

The PCR products of DC-LT-1/LT-2 primer set using *L. tropica* lysate was cloned into a TA cloning vector (pCRII; Invitrogen Inc.) and the recombinant clones were checked for the presence of the cloned PCR product. The screening was done by conventional screening methods and also by PCR amplification procedures using both set of primers. The purified copy control plasmid (pDCL-3) was used to measure the

☐ JW-11i/12i JW-11/12 LT-1/LT-2 DC-11/12 blank 2 Log plamid copy number S, ဖ 4.5 3.5 Average OD 490 م 1.5 0.5 0

Chart 12. Testing of L. tropica copy control plasmid with different primers

analytical sensitivity of PCR reactions for L. tropica. The result of one such test is presented in Chart 12. All primer sets tested (JW 11/12 and JW 11i/12i (the original primer sets); DC 11/12 (in-house primer set, similar to JW 11/12, with mixed base position matching to L. tropica sequence and DC-LT-1 and DC-LT-2 (the primer set used for cloning the PCR products), amplify the L. tropica copy control plasmid pDCL-3 very efficiently and the analytical sensitivity of detection is about 100 copies (lowest copy number used in the assay). The absolute signal strength with primer sets JW 11i/12i and DC-LT-1/LT-2 is about 2-fold higher compared with JW 11/12 and DC 11/12 indicating the sensitivities of assay may possibly be less than 100 copies (not tested).

The new primer set DC-LT-1/LT-2, although contains about 5-10 nucleotides from the 5' terminal regions of the original JW 11 and 12 primers, is unique from all other primer sets tested so far, in that, it completely lacks the mixed base sequences. The preliminary tests indicate that the sensitivity of this primer set and the combination of DC-LT-1 (sense primer) with JW 12 (antisense) provides a better sensitivity (detection of one parasite), compared to other primer sets used in the assay, in amplifying L. tropica sequences (Chart 13). It appears that the extreme degree of sequence variability present in L. tropica, prevents consistent amplification with JW 11/12 and other primers, which always include the mixed-base region; and primers outside this mixed base position seem to favour a reasonably good efficiency of amplification. Further tests are needed to confirm the superior performance of the new primer set, DC-LT-1/LT-2, before adopting it, over JW 11/12 or JW 11i/12i primer sets, for evaluation of clinical samples.

3.6 Heterologous DNA Testing

It was suggested in the Statement of Work and by the Leishmania Working Group that we test a variety of heterologous DNAs using our PCR detection technique to ensure specificity of the primers and

☐ DC-LT-1/JW-12 DC-LT-1/DC-12 ■ DC-LT-1/LT-2 JW-11/12 blank Chat 13. Testing of DC-LT-1 as the sense primer for L. tropica Log parasite number က 3.5 0.5 က Average OD 490

probes being used. A list of possible organisms was provided by the Leishmania Working Group and included the following;

Trypanosoma cruzi, T. gambiense, T. rhodesiense, T rangeli. Leptomone, Crithidia, Herpetomonas, Toxoplasma, Plasmodium falciparum, Babesia, Pneumocystis carinii, Herpes, Salmonella, Histoplasma capsulatum, Mycobacterium tuberculosis, HIV, and Hepatitis B and C.

After receiving information from MAJ Grogl regarding the availability of certain heterologous DNAs from the ATCC, we obtained the necessary permit applications to purchase samples of these organisms as many of them are classified as Class II, III, and IV pathogens. Testing the DNA obtained by protocols appropriate for DNA isolation from each type of organism at 1 μ g concentrations in our standard PCR reactions did not produce any detectable signal from any of the organisms listed. Additional tests against blind negative control patients with Malaria and several other tropical diseases also produced no false positive reactions, indicating that the current PCR primers and conditions are specific for Leishmania kDNA and do not cross-react to any significant degree with the heterologous DNAs tested.

3.7 PCR Results on Patient Samples

During the course of the contract period, a number of patient samples have been received and tested using the PCR protocols described in this report. A complete listing of all samples tested to date is included in Appendix I of this report.

These samples partitioned into several categories including: (1) positive and negative control samples obtained from patients with known diseases including Kala-Azar, Malaria, HIV infection, etc; (2) canine samples used for potential animal model work; (3) spiked controls; and (4) a large number of "rule out" patient samples. The

latter category was comprised of samples (blood, bone marrow, and on occasion, spleen, liver, skin and other tissue specimens) from patients who present with clinical symptoms that may indicate Leishmania infection.

While the unknown patient samples represented the most important aspect of the assay development, they are also the most difficult to evaluate in terms of test accuracy. A large number of the unknown patient samples (1068) have tested negative while in comparison only a few (272) have tested positive. In most cases, positive results were confirmed by clinical data, such as, IFA, culture, etc (LTC E. Nuzum, personal communication). In contrast. some of the negative PCR results can be considered "biological false negatives". In some cases, very few or no circulating parasite-infected cells are present in the patient samples. This is particularly true with patients undergoing successful treatment or those exhibiting cutaneous lesions without visceralization of the disease. From the latter patients, aspirates of the lesion itself may test positive by PCR whereas peripheral blood samples may test negative.

This result is to be distinguished from a "technical false negative" which is defined as a sample that contains Leishmania DNA, but presents a false negative result when tested by PCR. These results are extremely rare and may be explained in several ways. indicated previously (Charts 1, 2, 8, 9 and 10) different species of Leishmania exhibit differing limits of detection using our current PCR protocol. It is possible that in some cases, the particular species of Leishmania present in a given sample is at a level undetectable using our current primer sets. Another possible explanation is the presence of inhibitory material in the patient sample that prevents PCR amplification of the Leishmania DNA. This possibility was evaluated in all suspected "biological false negative" results seen to date by re-assaying the sample with a fixed level of Leishmania control DNA spiked into the sample. cases, the spiked DNA was detected with approximately the same signal

strength as seen from a parallel reaction containing the same level of *Leishmania* control DNA in reaction buffer, effectively ruling out the presence of significant inhibition in those samples.

During the course of Phase I of this contract, a number of blind negative samples have been assayed and results were clean (0/15 samples tested) with no false positives. Additionally, samples from patients with Malaria or other tropical diseases, prevalent in the region, where the *Leishmania* parasites are found, were also tested. In all cases, no positive reactions were seen. These results reflect the degree of care taken and the effectiveness of the containment procedures followed at our laboratory in preventing cross contamination.

In comparison, results obtained from a panel of 64 blinded control samples taken from patients with Kala-Azar disease at various stages, representing several geographical locations (Kenya, India, Brazil), the following statistics were obtained (provided by COL J. Berman); When samples come from samples prior to patient therapy, ≥ 92% are positive by PCR assay, therefore yielding a false negative rate of ≤ 8%, depending upon the source of the patient sample. If the patient has completed therapy by 2-6 months, 0-4 patients (0%) are positive, indicating the effectiveness of the therapy at removing detectable levels of Leishmania DNA from peripheral blood. Interestingly, the detection rate for purely cutaneous disease was approximately 11% (1 out of 9), indicating the absence of detectable Leishmania DNA in peripheral blood if the disease is confined to skin lesions. However, aspirates taken from cutaneous lesions of these patients do test positive by PCR, confirming the presence of parasitic DNA in an actively infected lesion.

4. Conclusions

The need for sensitivity in detecting the very low levels of Leishmania present in peripheral blood suggests that the optimal target sequence would be "pre-amplified", such as DNA present in multiple copies in each parasite. The kinetoplast DNA (kDNA) found in Leishmania and related organisms presents a good example of this kind of target. One inherent limitation this target sequence presents, however, is the genetic diversity of kDNA. Differences exist throughout this sequence, not only between different species of Leishmania, but also potentially within a given organism. The concatenated nature of the target, where some minicircles may not be available to the PCR primers and therefore amplification, presents yet another potential problem reducing sensitivity for the PCR reaction. Within these limitations, some regions of conserved DNA sequence have been observed across multiple Leishmania species, although there is more similarity within the New and Old World species than there is between these divisions.

Utilizing DNA sequence information and computer homology searches, multiple PCR primers have been designed within these kDNA sequences, and tested to produce specific PCR products with no significant cross-reaction with non-Leishmania DNA. The reaction conditions have been optimized to detect one parasite equivalents in peripheral blood and evaluated with blinded negative and positive control patient samples from various geographical locations. The testing procedures described realiably detect *Leishmania* in samples from most of the infected patients (> 90%) tested and resulted in no false positive diagnosis.

Based on the results obtained during this contract period, SRA Technologies has developed and validated a sensitive and specific PCR based diagnostic test for Leishmaniasis. While we received only 1420 patient samples (Appendix I) to screen for Leishmania infection, and there are certain biological factors regarding the low level of Leishmanial DNA present in peripheral blood in some cases, we are confident that the test can be applied successfully on a large scale basis.

Among the information gained as a result of our development and validation of the assay, are novel observations regarding the level of Leishmania parasites (as indicated by the presence of Leishmania DNA detectable by the PCR assay). It is evident even from our limited number of samples, that Leishmania are either absent, or present in extremely low levels (less than 1 parasite or infected cell in 1.5 X 106 PBMCs or 1.5-2 mls of blood) in cases of cutaneous disease, or in patients during and after suitable anti-Leishmanial These biological effects may limit the use of any test that detects Leishmania in peripheral blood to cases of visceral disease prior to treatment. The test could be used, however, to monitor the success of therapy due to the observation that the parasites are largely cleared from circulation following successful therapy. Despite these limitations, the PCR based test described in this report exhibits sensitivity of one parasite equivalents or a single infected cell in 8 mls of blood, as demonstrated by spiking control experiments. Our attempts to develop a true second diagnostic primer set for Leishmania species was generally unsuccessful.

The progress of this work has been reported to the Leishmania working group and the COR in 15 reports and various memoranda (reporting results of sample analyses). One manuscript detailing the application of this technology for the detection and diagnosis of Leishmanial infections has been submitted for publication (Appendix II).

5. Bibliography

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6. Appendix I: List of Leishmania specimens tested

SRA Technologies has developed an in-house Relational Laboratory Information Manage (RLIMS), running in Oracle under UNIX, that is used to index and archive all patien information. This information includes patient ID numbers, sample type, date of r tested done, primers/probes used, date of analysis, interpretation of the test resu diagnostic report. As per the request of the *Leishmania* working group, all *Leishmani* data (both clinical as well as research) has been entered into our RLIMS system. He printout of all the *Leishmania* specimens analyzed by PCR during the course of this

					Probe JW 14							
Spec I	Spec ID Patient Name	FPC + SSN	Spec Type	Spec Received Type Date	udy	Panel Assay Date Virus	Virus Primer		Tube T # 1 #	Tube # 2 Int	t Comments	Final Result
11221	GATES, JOHN	-267-64-7560	BL	04-FEB-92	I.M	90006 15-MAX-92	LEISHMANIA JW 11/12			- NR	ж.	NEGATIVE
11346	COLWELL, ROBERT	20-333-60-5644 BM	BM	11-FEB-92	Ϊ́Μ	90006 25-MAY-92	LEISHMANIA JW 11/12	27	1	- NR	æ	NEGATIVE
11347	COLWELL, ROBERT	20-333-60-5644 BL	BL	11-FEB-92	I.M	90006 15-MAY-92	LEISHMANIA JW 11/12	7		- NR	æ	NEGATIVE
11480	OGDEN, RUSSEL W	20-467-45-9394 BL	BL	20-FEB-92	ΓM	90006 15-MAY-92	LEISHMANIA JW 11/12	7	,	- NR		NEGATIVE
11480.	11480.A OGDEN, RUSSEL W	20-467-45-9394 BM	BM	20-FEB-92	IIM	90006 26-MAY-92	LEISHMANIA JW 11/12	2		- NR	æ	NEGATIVE
11481	MORRIS, TABITHA	20-491-78-6750 BL	BL	20-FEB-92	ΓīΜ	90006 15-MAY-92	LEISHMANIA JW 11/12	7	1	- NR	œ	NEGATIVE
11481.	11481.A MORRIS, TABITHA	20-491-78-6750 BM	BM	20-FEB-92	I.M	90006 25-MAY-92	LEISHMANIA JW 11/12	27		- NR	œ	NEGATIVE
11618	PATIENT #1 03-MAR-92, LE	i M	BL	03-MAR-92	LM	90006 15-MAY-92	LEISHMANIA JW 11/12	2	,	, RR	œ	NEGATIVE
11619	PATIENT #2 03-MAR-92, LE	i M	BĽ	03-MAR-92	ΓM	90006 15-MAY-92	LEISHMANIA JW 11/12	2	1	, E	ď	NEGATIVE
11620	PATIENT #3 03-MAR-92, LE	1	BL	03-MAR-92	ГМ	90006 15-MAY-92	LEISHMANIA JW 11/12	7		, NR	œ	NEGATIVE
11621	PATIENT #4 03-MAR-92, LE	- -	BL	03-MAR-92	ĽΨ	90006 15-MAY-92	LEISHMANIA JW 11/12	7	,	- NR	œ	NEGATIVE
11683	SMITH, HERBERT J	20-264-56-5136 BL	BL	05-MAR-92	I'M	90006 15-MAY-92	LEISHMANIA JW 11/12	7	1	, MR	œ	NEGATIVE
11684	SERGOTT, PATRICK J	20-355-60-6724 BL	BL	05-MAR-92	ΓīΜ	90006 15-MAY-92	LEISHMANIA JW 11/12	Ŋ	,	, NR	¢.	NEGATIVE
11685	SMITH, HERBERT J	20-264-56-5136 BM	BM	05-MAR-92	IIM	90006 25-MAY-92	LEISHMANIA JW 11/12	7	,	, E	κ.	NEGATIVE
11686	SERGOTT, PATRICK J	20-355-60-6724 BM		05-MAR-92	I.M	90006 25-MAY-92	LEISHMANIA JW 11/12	6	1	NR	κ.	NEGATIVE
11829	PATIENT #1 12-MAR-92, LE	1 60	ВМ	12-MAR-92	LM	90006 25-MAY-92	LEISHMANIA JW 11/12	Vį	,	NR.	~	NEGATIVE
11830	PATIENT #2 12-MAR-92, LE	,	BL	12-MAR-92	LM	90006 15-MAY-92	LEISHMANIA JW 11/12	и́		NR	~	NEGATIVE
11831	PATIENT #3 12-MAR-92, LE	1	BL	12-MAR-92	LM	90006 15-MAY-92	LEISHMANIA JW 11/12	6		NR	~	NEGATIVE
11970	KAPPLAN, LEISHMANIA	1	BL	19-MAR-92	ГМ	90006 15-MAY-92	LEISHMANIA JW 11/12	6		, NR	~	NEGATIVE
11971	KAPPLAN, LEISHMANIA	ı	BM	19-MAR-92	LM	90006 25-MAY-92	LEISHMANIA JW 11/12	77		NR	~	NEGATIVE
11972	PATIENT #2 19-MAR-92, LE	1	BL	19-MAR-92	LM	90006 15-MAY-92	LEISHMANIA JW 11/12	7		NR	~	NEGATIVE
11973	SANTATERRARA, LEISHMANIA	ı	BM	19-MAR-92	LM	90006 25-MAY-92	LEISHMANIA JW 11/12	7		NR	~	NEGATIVE
11974	PATIENT #3 19-MAR-92, LE	ı	BL	19-MAR-92	ГМ	90006 15-MAY-92	LEISHMANIA JW 11/12	8	•	NR		NEGATIVE
12083	ROBERTS, MICHAEL J	-009-50-3733	BI	30-MAR-92	LIM	90006 15-MAY-92	LEISHMANIA JW 11/12	N	·	NR		NEGATIVE

		o	postioned near		Probe JW 14								
Spec ID	D Patient Name	FPC + SSN T	Type Date		Study	Panel Assay Date Virus	Virus	Primer	Tube # 1	Tube # 2 1		Comments	Final Result
12129	AMBORGI,	E	BM 01-APR-92	92 LM	1 1 1 1 1	90006 25-MAY-92	LEISHMANIA JW 11/12	W 11/12	1 1 1 1	; ; ! ! !	NR.	1	NEGATIVE
12130	ROBERTS, MICHAEL J	-009-50-3733 B	BM 01-APR-92	.92 LM		90006 25-MAY-92	LEISHMANIA JW 11/12	W 11/12	1	ı	NR		NEGATIVE
12131	PATIENT #1 01-APR-92, LE		BL 01-APR-92	.92 LM		90006 15-MAY-92	LEISHMANIA JW 11/12	W 11/12	t	į	NR		NEGATIVE
12153	PATIENT #2 03-APR-92, LE		BL 03-APR-92	.92 LM		90006 15-MAY-92	LEISHMANIA JW 11/12	W 11/12	ı	į	N.		NEGATIVE
12154	RILEY, SYLVIA	20-220-74-4985 BM	M 03-APR-92	.92 LM		90006 25-MAY-92	LEISHMANIA JW 11/12	W 11/12	,	į	NR		NEGATIVE
12155	BATCHELDER, SHAWN	20-595-62-7906 BM	M 03-APR-92	.92 LM		90006 25-MAY-92	LEISHMANIA JW 11/12	W 11/12	•	ı	NR		NEGATIVE
12156	PATIENT #1 03-APR-92, LE	1	BL 03-APR-92	92 LM		90006 15-MAY-92	LEISHMANIA JW 11/12	W 11/12	1	ı	MR.		NEGATIVE
12272	PATIENT #1 10-APR-92, L	LI - B	BL 10-APR-92	92 LM		90006 15-MAY-92	LEISHMANIA JW 11/12	W 11/12	1	1	NR.		NEGATIVE
12273	PATIENT #2 10-APR-92, I	LE - B	BL 10-APR-92	92 I.M		90006 15-MAY-92	LEISHMANIA JW 11/12	W 11/12		ł	N.		NEGATIVE
12343	PATIENT #_ 14-APR-92, L	LE - B	BL 14-APR-92	92 LM		90006 15-MAY-92	LEISHMANIA JW 11/12	W 11/12			MR		NEGATIVE
12379	PATIENT #1 15-APR-92, L	LE - B	BL 15-APR-92	92 I.M		90006 15-MAY-92	LEISHMANIA JW 11/12	W 11/12	1		Æ		NEGATIVE
12380	PIRKEY, JASON	20-461-77-7490 BL	L 15-APR-92	92 LM		90006 15-MAY-92	LEISHMANIA JW 11/12	W 11/12	1		N.		NEGATIVE
12381	PIRKEY, JASON	20-461-77-7490 BM	M 15-APR-92	92 LM		90006 25-MAY-92	LEISHMANIA JW 11/12	W 11/12	1	ı	MR		NEGATIVE
12403	PATIENT 17-APR-92, LEISH	зн - вг	L 17-APR-92	92 LM		90006 15-MAY-92	LEISHMANIA JW 11/12	W 11/12	1		MR		NEGATIVE
12404	PATIENT 17-APR-92, LEISH	3H - BM	M 17-APR-92	92 LM		90006 25-MAY-92	LEISHMANIA JW 11/12	W 11/12	1	1	N.		NEGATIVE
12481	PATIENT #B1 20-APR-92,	L - BL	L 20-APR-92	92 LM		90006 15-MAY-92	LEISHMANIA JW 11/12	W 11/12	ŕ	1	M.		NEGATIVE
12482	PATIENT 20-APR-92, LEISH	зн - вм	M 20-APR-92	92 LM		90006 25-MAY-92	LEISHMANIA JW 11/12	W 11/12	1	ı	NR.		NEGATIVE
12522	DARLING, RALPH	20-324-40-5525 BL	L 21-APR-92	92 LM		90006 15-MAY-92	LEISHMANIA JW 11/12	W 11/12		1	MR		NEGATIVE
12565	PATIENT #1 23-APR-92, LE	7E - BL	L 23-APR-92	92 I.M		90006 15-MAY-92	LEISHMANIA JW 11/12	W 11/12			Æ		NEGATIVE
12566	PATIENT #1 23-APR-92, L	LE - BM	4 23-APR-92	92 LM		90006 25-MAY-92	LEISHMANIA JW 11/12	W 11/12			Ä		NEGATIVE
12607	PATIENT #2 27-APR-92, LE	JE - BL	. 27-APR-92	92 LM		90006 15-MAY-92	LEISHMANIA JW 11/12	W 11/12	r	ı	æ		NEGATIVE
12608	PATIENT #1 27-APR-92, L	LE - BM	4 27-APR-92	92 LM		90006 25-MAY-92	LEISHMANIA JW 11/12	W 11/12		1	MR		NEGATIVE
12668	PATIENT 30-APR-92, LEISH	H - BL	1 30-APR-92	92 I.M		90006 15-MAY-92	LEISHMANIA JW 11/12	W 11/12	+	+	RE		POSITIVE
12669	PATIENT 30-APR-92, LEISH	. BM	4 30-APR-92	92 I.M		90006 25-MAY-92	LEISHMANIA JW 11/12	W 11/12	+	+	RE		POSITIVE

Page 3 Report Date:

II pėds	Spec ID Patient Name	FPC + SSN	Spec Type	Received Date	Study	Panel Assay Date Virus	Virus	Primer	Tube 1	Tube # 2 Int	Comments	Final Result
12723	PATIENT #1 04-MAY-92, LE	LB - ,	BM	04-MAY-92	I.M	90006 25-MAY-92	LEISHMANIA JW 11/12	N 11/12	! !	- NR		NEGATIVE
12724	PATIENT #2 04-MAY-92, LE	gr	BĽ	04-MAY-92	I.Μ	90006 22-MAY-92	LEISHMANIA JW 11/12	W 11/12	ı	- NR		NEGATIVE
12725	PATIENT #3 04-MAY-92, LE	- BJ	ВМ	04-MAY-92	ΓΜ	90006 25-MAY-92	LEISHMANIA JW 11/12	W 11/12	ı	- NR		NEGATIVE
12726	PATIENT #4 04-MAY-92, LE	. 83	BL	04-MAY-92	ПМ	90006 22-MAY-92	LEISHMANIA JW 11/12	W 11/12	ı	, NR		NEGATIVE
12780	PATIENT 05-MAY-92, LEISH	- HS	ВМ	05-MAY-92	LIM	90006 22-MAY-92	LEISHMANIA JW 11/12	W 11/12	ı	- MR		NEGATIVE
12781	PATIENT 05-MAY-92, LEISH	- HS	BL	05-MAY-92	ГМ	90006 22-MAY-92	LEISHMANIA JW 11/12	W 11/12	i	- E		NEGATIVE
12928	STONE, LEISHMANIA	·	BL	12-MAY-92	IIM	90006 22-MAY-92	LEISHMANIA JW	W 11/12	ı	, AR		NEGATIVE
13403	701, LEISHMANIA	ī	BL	08-JUN-92	Гл	90007 10-JUN-92 90007 09-JUL-92 90007 24-JUL-92	LEISHWANIA JW 11/12 LEISHWANIA JW 11/12 LEISHWANIA JW 11/12	N 11/12 N 11/12 N 11/12	+ 1 1	- IND - NR - NR	8	NEGATIVE NEGATIVE NEGATIVE
13404	702, LEISHMANIA	•	BL	08-JUN-92	I.M	90007 10-JUN-92	LEISHMANIA JW 11/12	4 11/12	1	- NR		NEGATIVE
13405	711, LEISHMANIA	•	BL	08-JUN-92	ΓM	90007 10-JUN-92	LEISHMANIA JW	¥ 11/12	+	+ RE		POSITIVE
13406	712, LEISHMANIA	ı	BL	08-JUN-92	IIM	90007 10-JUN-92	LEISHMANIA JW	4 11/12	•	- NR		NEGATIVE
13407	713, LEISHMANIA	•	BL	08-JUN-92	LM	90007 10-JUN-92	LEISHMANIA JW 11/12	4 11/12	,	- NR		NEGATIVE
13408	718, LEISHMANIA		BL	08-JUN-92	LM	90007 10-JUN-92	LEISHMANIA JW 11/12	11/12	•	- ER		NEGATIVE
13409	725, LEISHMANIA	1	BL	08-JUN-92	ΓM	90007 10-JUN-92	LEISHMANIA JW 11/12	11/12	t	- NR		NEGATIVE
13410	729, LEISHMANIA	•	BL	08-JUN-92	IIM	90007 10-JUN-92	LEISHMANIA JW 11/12	11/12	1	- NR		NEGATIVE
13411	738, LEISHMANIA	1	BL	08-JUN-92	ГМ	90007 10-JUN-92 90007 09-JUL-92 90007 24-JUL-92	LEISHMANIA JW LEISHMANIA JW LEISHMANIA JW	JW 11/12 JW 11/12 JW 11/12	+ 1 1	- IND - NR - NR	Α	NEGATIVE NEGATIVE NEGATIVE
13412	740, LEISHMANIA	ı	BL	08-JUN-92	ГМ	90007 10-JUN-92	LEISHMANIA JW	11/12	ı	- NR		NEGATIVE
13413	761, LEISHMANIA	1	BL	08-JUN-92	LM	90007 10-JUN-92	LEISHMANIA JW	11/12	1	- NR		NEGATIVE
13414	767, LEISHMANIA	t	BL	08-JUN-92	LM	90007 10-JUN-92	LEISHMANIA JW	11/12		- MR		NEGATIVE
13415	768, LEISHMANIA	ı	BĽ	08-JUN-92	I.M	90007 10-JUN-92	LEISHMANIA JW	11/12	ı	- NR		NEGATIVE
13416	778, LEISHMANIA	ı	BL	08-JUN-92	ГМ	90007 10-JUN-92	LEISHMANIA JW 11/12	11/12	,	- NR		NEGATIVE
13417	779, LEISHMANIA	1	BĽ	08-JUN-92	ΠM	90007 10-JUN-92	LEISHMANIA JW 11/12	11/12	1	- NR		NEGATIVE

Report Date:

Spec ID) Patient Name	Λì	FPC + SSN	Spec Type	Received Date	Study	Panel Assay Date Virus	ay Date	Virus	Primer	Tube # 1	Tube # 2 Int	Comments	Final Result
13418	780, LEISHMANIA	ANIA	1 1 1	BL	08-JUN-92	LM	90007 10	10-JUN-92	 LEISHMANIA JW 11/12	W 11/12		NR	2	NEGATIVE
13419	789, LEISHMANIA	ANIA	. ,	BL	08-JUN-92	IIM	90007 10-01-92		LEISHMANIA J	JW 11/12	1	- MR	~	NEGATIVE
13420	790, LEISHMANIA	WIA	1	BL	08-JUN-92	LM	90007 10-JUN-92		LEISHMANIA J	JW 11/12	1	- NR	~	NEGATIVE
13421	795, LEISHMANIA	ANIA	1	BL	08-JUN-92	ГМ	90007 10-JUN-92		LEISHMANIA JW 11/12	W 11/12	t	- NR	~	NEGATIVE
13422	796, LEISHMANIA	MIA		BL	08-JUN-92	IIM	90007 10-JUN-92		LEISHMANIA JW 11/12	W 11/12	1	NR	~	NEGATIVE
13423	803, LEISHMANIA	MIA	ı	BL	08-JUN-92	I.M	90007 10-JUN-92		LEISHMANIA JW 11/12	W 11/12	ı	- NR	~	NEGATIVE
13424	806, LEISHMANIA	MIA	f	BL	08-JUN-92	LM	90007 10-92		LEISHMANIA JW	W 11/12	ı	, NR		NEGATIVE
13425	807, LEISHMANIA	NIA	1	BL	08-JUN-92	NT.	90007 09-0 90007 10-0 90007 24-0	09-JUN-92 1 10-JUN-92 1 24-JUL-92	LEISHMANIA JW LEISHMANIA JW LEISHMANIA JW	JW 11/12 JW 11/12 JW 11/12	1 + 1	- NR - INI - NR	NR IND NR	NEGATIVE NEGATIVE NEGATIVE
13426	815, LEISHMANIA	INIA	ı	BL	08-JUN-92	ГW	90007 10-92		LEISHMANIA JW	W 11/12	ı	- NR		NEGATIVE
13427	816, LEISHMANIA	INIA	•	BL	08-JUN-92	Ë	90007 10-	10-JUN-92	LEISHMANIA JW	W 11/12	1	- NR	-	NEGATIVE
13428	817, LEISHMANIA	INIA	•	BL	08-JUN-92	LM	90007 10-01-92		LEISHMANIA JW	W 11/12	ı	- NR	-	NEGATIVE
13429	955, LEISHMANIA	INIA	•	BL	08-JUN-92	ĽΜ	90007 10-JUN-92		LEISHMANIA JW	W 11/12	1	- NR	-	NEGATIVE
13430	960, LEISHMANIA	MIA	ı	BL	08-JUN-92	EM EM	90007 24-0 90007 10-0 90007 09-0	24-JUL-92 1 10-JUN-92 1 09-JUL-92 1	LEISHMANIA JW LEISHMANIA JW LEISHMANIA JW	W 11/12 W 11/12 W 11/12	1 + 1	- NR - IND - NR	4 Q	NEGATIVE NEGATIVE NEGATIVE
13431	962, LEISHMANIA	INIA	ŧ	BL	08-JUN-92	ΓW	90007 10-JUN-92		LEISHMANIA JW	W 11/12	1	- NR		NEGATIVE
13432	963, LEISHMANIA	INIA		BĽ	08-JUN-92	ГМ	90007 10-JUN-92		LEISHMANIA JW 11/12	W 11/12	1	- NR		NEGATIVE
13433	967, LEISHMANIA	INIA	ı	BĽ	08-JUN-92	LM	90007 10-JUN-92		LEISHMANIA JW	W 11/12	1	- NR		NEGATIVE
13434	1004, LEISHMANIA	IANIA	1	BL	08-JUN-92	LM	90007 10-JUN-92		LEISHMANIA JW	W 11/12	ı	- NR		NEGATIVE
13435	1008, LEISHMANIA	IANIA	1	BL	08-JUN-92	LM	90007 10-5	10-JUN-92	LEISHMANIA JI	JW 11/12	1	- NR		NEGATIVE
13436	1012, LEISHMANIA	PANIA	1	BĽ	08-JUN-92	IM	90007 10-0	10-JUN-92	LEISHMANIA JI	JW 11/12	,	- NR		NEGATIVE
13437	1013, LEISHMANIA	PANIA	ı	BL	08-JUN-92	LIM	90007 10-5	10-JUN-92	LEISHMANIA JI	JW 11/12	ı	- NR		NEGATIVE
13438	1020, LEISHMANIA	IANIA	1	BL	08-JUN-92	NT.	90007 10-JUN-92		LEISHMANIA JW	W 11/12	ı	- NR		NEGATIVE
13439	1025, LEISHMANIA	IANIA	ì	BĽ	08-JUN-92	I.M	90007 10-JUN-92		LEISHMANIA JW 11/12	W 11/12	1	- NR		NEGATIVE

į			Spec R	ived	1000				a)	Tube		
Spec II	Spec ID Patient Name	FPC + SSN	Type Date	1 1 1	Study	Panel Assay Date Virus		Primer	# 1	#2 In	Comments	Final Result
13440	1026, LEISHMANIA	1	BL 0	08-JUN-92	ILM	90007 24-JUN-92 90007 10-JUN-92	LEISHMANIA JW LEISHMANIA JW	JW 11/12 JW 11/12	! ! ! +	. A H	NR IND	NEGATIVE NEGATIVE
						09-JUL-92		JW 11/12	. +	, [QNI	NEGATIVE
13441	1033, LEISHMANIA	,	BL 0	08-JUN-92	LM	90007 10-JUN-92	LEISHMANIA JW 11/12	11/12	ì	1	NR	NEGATIVE
13442	1037, LEISHMANIA		вг о	08-JUN-92	LM	90007 10-JUN-92	LEISHMANIA JW 11/12	11/12	ı	1	NR	NEGATIVE
13443	1038, LEISHMANIA		BL 0	08-JUN-92	LM	90007 10-JUN-92	LEISHMANIA JW 11/12	11/12	ı	iZ	NR	NEGATIVE
13444	1045, LEISHMANIA		BL 0	08-JUN-92	LM	90007 10-JUN-92	LEISHMANIA JW 11/12	11/12	ı	4	NR	NEGATIVE
13445	1051, LEISHMANIA	1	BL 0	08-JUN-92	ΓM	90007 10-JUN-92	LEISHMANIA JW 11/12	11/12	1	Z	NR	NEGATIVE
13446	1055, LEISHMANIA		вг о	08-JUN-92	LM	90007 10-JUN-92	LEISHMANIA JW 11/12	11/12	1	,	NR	NEGATIVE
13447	1058, LEISHMANIA	1	BL 0	08-JUN-92	LM	90007 10-JUN-92	LEISHMANIA JW 11/12	11/12	ı	z	NR	NEGATIVE
13448	1064, LEISHMANIA	1	BL 0	08-JUN-92	LM	90007 10-JUN-92	LEISHMANIA JW 11/12	11/12	ı	Z	NR	NEGATIVE
13449	1073, LEISHMANIA	,	вь 0	08-JUN-92	ΓM	90007 10-JUN-92	LEISHMANIA JW	11/12	ı	iZ I	NR	NEGATIVE
13450	1076, LEISHMANIA	,	BL 0	08-JUN-92	LIM	90007 10-JUN-92	LEISHMANIA JW 11/12	11/12	ı	z	NR .	NEGATIVE
13451	1089, LEISHMANIA	ı	BL 0	08-JUN-92	ĽΨ	90007 10-JUN-92	LEISHMANIA JW 11/12	11/12	1	Z	NR	NEGATIVE
13452	1092, LEISHMANIA	1	BL 0	08-JUN-92	ГМ	90007 10-JUN-92	LEISHMANIA JW	11/12	1	z	NR	NEGATIVE
13453	1095, LEISHMANIA	1	BL 0	08-JUN-92	LM	90007 10-JUN-92	LEISHMANIA JW 11/12	11/12	1	z	NR	NEGATIVE
13454	1098, LEISHMANIA	1	BL 0	08-JUN-92	LM	90007 10-JUN-92	LEISHMANIA JW 11/12	11/12	1	Z	NR	NEGATIVE
23573	LAROCHE,	1	BL 0	07-NUT-93	LM	90008 08-JUN-93	LEISHMANIA JW 11/12	11/12	1	Z	NR	NEGATIVE
23574	HENDRICK, PETER	;	BL 0	07-NUC-93	LM	90008 08-JUN-93	LEISHMANIA JW 11/12	11/12	ı	z	NR	NEGATIVE
23575	PATIENT #1 07-JUN-93,	1	BL 0	07-NUT-93	LM	90008 08-JUN-93	LEISHMANIA JW 11/12	11/12	1	2	NR	NEGATIVE
23576	PATIENT #2 07-JUN-93,	ı	BM 0	07-NUT-93	ΓW	90008 08-JUN-93	LEISHMANIP JW 11/12	11/12	1	z	NR	NEGATIVE
23677	CHIPLEY, JOSHUA W	20-564-33-6887 BL		11-JUN-93	ГМ	90008 15-JUN-93	LEISHMANIA JW 11/12	11/12	1	z	NR	NEGATIVE
23678	CHIPLEY, JOSHUA W	20-564-33-6887 E	BL 1	11-JUN-93	LIM	90008 15-JUN-93	LEISHMANIA JW	11/12		Z ·	NR	NEGATIVE
2000501	31601,	ų.	вг о	09-JUN-93	IM	90008 15-JUN-93	LEISHMANIA JW	11/12	1	Z I	NR	NEGATIVE
Z000502 31601,	31601,	ı	BM	09-NUT-93	IIM	90008 15-JUN-93	LEISHMANIA JW 11/12	11/12	1	2	NR	NEGATIVE

Spec ID Patient Name	FPC + SSN	Spec Type	Spec Received Type Date	Study	Panel Assay Date Virus	e Virus	Primer	Tube	Tube # 2 I	Int Comments	Final Result
Z000503 31621,		BL	11-JUN-93	Ϊ́Μ	90008 15	LEISHMANIA	JW 11/12	+	-	RE	POSITIVE
Z000504 31622,		BL	14-JUN-93	ГМ	90008 15-JUN-93	LEISHMANIA	JW 11/12	+	+	RE	POSITIVE
Z000505 31623,	1	BL	11-JUN-93	LM	90008 15-JUN-93	B LEISHMANIA JW 11/12	JW 11/12	+	+	RE	POSITIVE
Z000506 31624,	1	BL	11-JUN-93	LM	90008 15-JUN-93	B LEISHMANIA JW 11/12	JW 11/12	+	+	RE	POSITIVE
Z000507 CHIPLEY, JOSHUA W	20-564-33-6887	7 TE	11-JUN-93	ГМ	90008 15-JUN-93	B LEISHMANIA JW 11/12	JW 11/12	1	1	NR	NEGATIVE
Z000508 CHIPLEY, JOSHUA W	20-564-33-6887 TE	7 TE	11-JUN-93	LM	90008 15-JUN-93	B LEISHMANIA JW 11/12	JW 11/12	ı	1	NR	NEGATIVE
26642 54F,	1	BL	25-OCT-93	LM	90010 29-OCT-93	B LEISHMANIA JW 11/12	JW 11/12	+	+	RE	POSITIVE
26643 65F,	ı	BL	25-OCT-93	LiM	90010 29-OCT-93	B LEISHMANIA JW 11/12	JW 11/12		1	NR	NEGATIVE
26644 71F,	ı	BL	25-0CT-93	ГМ	90010 29-OCT-93	ELEISHMANIA JW	JW 11/12		1	NR	NEGATIVE
26645 72F,	1	BL	25-OCT-93	LM	90010 29-OCT-93	LEISHMANIA	JW 11/12	1	1	NR	NEGATIVE
26646 73/74F,	ı	BL	25-0CT-93	LM	90010 29-OCT-93	LEISHMANIA	JW 11/12	ı	1	NR	NEGATIVE
26647 77F,	1	BL	25-OCT-93	LM	90010 29-OCT-93	ELEISHMANIA JW	JW 11/12	t	1	NR	NEGATIVE
26648 102F,	ŧ	BL	25-OCT-93	Μ·Ι	90010 29-OCT-93	B LEISHMANIA JW 11/12	JW 11/12	ı	1	NR	NEGATIVE
26716 VAUGHAN, GEORGE	20-543-62-6961	LOT	27-0CT-93	LM	90010 29-OCT-93	LEISHMANIA JW	JW 11/12	ı	1	NR	NEGATIVE
Z000692 328710,	1	BIL	14-0CT-93	WI	90010 22-OCT-93	ELEISHMANIA JW 11/12	JW 11/12	,	1	NR	NEGATIVE
Z000693 328711,	1	BĽ	14-0CT-93	ITM	90010 22-OCT-93	LEISHMANIA JW	JW 11/12	ı	1	NR	NEGATIVE
2000694 328712,	ı	BĽ	14-0CT-93	ĽΜ	90010 22-OCT-93	LEISHMANIA JW 11/12	TW 11/12	1	1	NR	NEGATIVE
2000695 32871,	,	BL	14-0CT-93	ΓW	90010 22-OCT-93	LEISHMANIA JW 11/12	TW 11/12	ı	1	NR	NEGATIVE
Z000696 32872,	1	BL	14-0CT-93	ГМ	90010 22-OCT-93	LEISHMANIA JW 11/12	TW 11/12	1	1	NR	NEGATIVE
Z000697 32873,		BL	14-0CT-93	ГМ	90010 22-OCT-93	LEISHMANIA JW 11/12	TW 11/12	1	,	NR	NEGATIVE
Z000698 32874,	1	BL	14-OCT-93	I.M	90010 22-OCT-93	LEISHMANIA JW 11/12	JW 11/12	ſ	1	NR	NEGATIVE
Z000699 32875,	1	BL	14-0CT-93	ГМ	90010 22-OCT-93	LEISHMANIA JW 11/12	TW 11/12	1	1	NR	NEGATIVE
Z000704 32876,	1	BL	14-0CT-93	LM	90010 22-OCT-93	LEISHMANIA JW 11/12	TW 11/12	ı		NR	NEGATIVE
Z000705 32877,	ı	BL	14-0CT-93	LM	90010 22-OCT-93	LEISHMANIA JW 11/12	TW 11/12	ı		NR	NEGATIVE

			Probe UW 14								
Spec ID Patient Name	S) FPC + SSN T	Spec Received Type Date	Study	Panel Assay Date Virus		Primer	Tube # 1	Tube # 2	Int	Comments	Final Result
Z000706 32878,		BL 14-0CT-93	I.M.	90010 22-OCT-93	LEISHMANIA JW 11/12	11/12	1 1		NR.		NEGATIVE
Z000707 32879,	- BI	L 14-0CT-93	I'M	90010 22-OCT-93	LEISHMANIA JW 11/12	11/12	,		NR.		NEGATIVE
Z000708 BACHMAN, JOHN	20-205-42-4875 TC	C 20-0CT-93	ГМ	90010 29-OCT-93	LEISHMANIA JW 11/12	11/12	+	+	RE		POSITIVE
Z000709 VAUGHAN, GEORGE	20-543-62-6961 BL	L 21-0CT-93	ГМ	90010 29-OCT-93	LEISHMANIA JW 11/12	11/12	1		NR.		NEGATIVE
Z000710 VAUGHAN, GEORGE	20-543-62-6961 BM	4 21-0CT-93	ΨI	90010 29-OCT-93	LEISHMANIA JW 11/12	11/12	r		NR.		NEGATIVE
Z000711 VAUGHAN, GEORGE	20-543-62-6961 BM	4 21-0CT-93	IIM	90010 29-OCT-93	LEISHMANIA JW 11/12	11/12	1	ı	NA NA		NEGATIVE
26879 NERONE, MARCUS A	20-257-17-3841 BL	L 03-NOV-93	LM	90011 08-NOV-93	LEISHMANIA JW 11/12	11/12	1	,	MR		NEGATIVE
26880 NERONE, MARCUS A	20-257-17-3841 BM	M 03-NOV-93	Ϊ́Μ	90011 08-NOV-93	LEISHMANIA JW 11/12	11/12	1	1	MR.		NEGATIVE
Z000712 VAUGHAN, GEORGE	20-543-62-6961 LI	I 01-NOV-93	IIM	90011 08-NOV-93	LEISHMANIA JW 11/12	11/12	ı	t	NR		NEGATIVE
27156 BRANDES, RONALD	20-317-48-7871 BL	17-NOV-93	ГМ	90012 29-NOV-93	LEISHMANIA JW 11/12	11/12		1	NR.		NEGATIVE
27157 BRANDES, RONALD	20-317-48-7871 BM	4 17-NOV-93	Ι'M	90012 29-NOV-93	LEISHMANIA JW 11/12	11/12	1	t	NR		NEGATIVE
27165 VAUGHAN, GEORGE	20-543-62-6961 TC	3 18-NOV-93	ГМ	90012 29-NOV-93	LEISHMANIA JW 11/12	11/12	1		NR		NEGATIVE
27166 NERONE, MARCUS A	20-257-17-3841 BL	18-NOV-93	ГМ	90012 29-NOV-93	LEISHMANIA JW 11/12	11/12		1	NR.		NEGATIVE
Z000713 NERONE, MARCUS A	20-257-17-3841 TC	2 09-NOV-93	Ι'n	90012 29-NOV-94	LEISHMANIA JW 11/12	11/12	+		CNI		INDETERMIN
Z000714 BRANDES, RONALD	20-317-48-7871 TC	17-NOV-93	LM	90012 29-NOV-93	LEISHMANIA JW 11/12	11/12	,		N.		NEGATIVE
Z000715 ELLIOTT, E	- TC	17-NOV-93	ГМ	90012 29-NOV-93	LEISHMANIA JW 11/12	11/12			Ä		NEGATIVE
Z000716 ELLIOTT, E	TC	17-NOV-93	Ϊ́Μ	90012 29-NOV-93	LEISHMANIA JW 11/12	11/12	ı	1	NR.		NEGATIVE
Z000766 BRANDES, RONALD	20-317-48-7871 LM	1 23-NOV-93	ĽM	90012 02-DEC-93	LEISHMANIA JW 11/12	11/12	1	ı	MR		NEGATIVE
Z000767 BRANDES, RONALD	20-317-48-7871 LI	[23-NOV-93	LIM	90012 02-DEC-93	LEISHMANIA JW 11/12	11/12	ı	1	NR.		NEGATIVE
Z000768 BRANDES, RONALD	20-317-48-7871 TC	23-NOV-93	LM	90012 02-DEC-93	LEISHMANIA JW	11/12	1	1	NR		NEGATIVE
Z000769 BRANDES, RONALD	20-317-48-7871 TC	23-NOV-93	ГМ	90012 02-DEC-93	LEISHMANIA JW 11/12	11/12	1	ı	NR		NEGATIVE
27882 HAYES, JANES	-380-80-7107 BL	21-JAN-94	LM	90013 01-JAN-94	LEISHMANIA JW 11/12	11/12		ı	NR		NEGATIVE
27883 HAYES, JANES	-380-80-7107 BM	1 21-JAN-94	LM	90013 13-JAN-94	LEISHMANIA JW 11/12	11/12	ı	1	NR		NEGATIVE
2000771 40211,	- BL	. 21-JAN-94 LM	ΓM	90013 26-JAN-94	LEISHMANIA JW 11/12	11/12	,	ŧ	NR.		NEGATIVE

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opec to ractelle banc	N 20 + 244	-1750	רבייייייייייייייייייייייייייייייייייייי		Faller Assay Date VIIUs	rus Frimer	;	# 7 #	# 2 TUC	Comments	Final Result
2000772 40212,	ı	BL	21-JAN-94	ГМ	90013 26-JAN-94 LE	LEISHMANIA JW 11/12	7		- NR		NEGATIVE
Z000773 40213,		BL	21-JAN-94	I'M	90013 26-JAN-94 LE	LEISHMANIA JW 11/12	7	t	- NR		NEGATIVE
Z000774 40214,	t	BL	21-JAN-94	ΓΜ	90013 26-JAN-94 LE	LEISHMANIA JW 11/12	7	1	- NR		NEGATIVE
Z000775 40215,	ı	BL	21-JAN-94	LM	90013 26-JAN-94 LE	LEISHMANIA JW 11/12	7	1	- NR		NEGATIVE
2000776 40216,	1	BL	21-JAN-94	I.M	90013 26-JAN-94 LE	LEISHMANIA JW 11/12	7		- NR		NEGATIVE
2000777 40217,	1	BL	21-JAN-94	IIM	90013 26-JAN-94 LE	LEISHMANIA JW 11/12	7	1	- NA		NEGATIVE
2000778 40218,	1	BL	21-JAN-94	LM	90013 26-JAN-94 LE	LEISHMANIA JW 11/12	6	ı	- NR		NEGATIVE
2000779 40219,		BL	21-JAN-94	LM	90013 26-JAN-94 LE	LEISHMANIA JW 11/12	7	1	- NR		NEGATIVE
Z000780 402110,	ı	BL	21-JAN-94	LM	90013 26-JAN-94 LE	LEISHMANIA JW 11/12	Ŋ	,	- NR		NEGATIVE
Z000781 402111,	ı	BL	21-JAN-94	LıM	90013 26-JAN-94 LE	LEISHMANIA JW 11/12	7	1	- NR		NEGATIVE
Z000782 402112,	1	BL	21-JAN-94	LM	90013 26-JAN-94 LE	LEISHMANIA JW 11/12	7		- NR		NEGATIVE
2000783 402113,		BL	21-JAN-94	LM	90013 26-JAN-94 LE	LEISHMANIA JW 11/12	7	,	- NR		NEGATIVE
2000784 402114,	1	BL	21-JAN-94	ΓM	90013 26-JAN-94 LE	LEISHMANIA JW 11/12	8	1	- NR		NEGATIVE
Z000785 ZUPEC, JEFFREY	•	BL	24 - JAN - 94	LM	90013 26-JAN-94 LE	LEISHMANIA JW 11/12	7	,	- NR		NEGATIVE
Z000786 ZUPEC, JEFFREY	1	BL	24-JAN-94	LM	90013 26-JAN-94 LE	LEISHMANIA JW 11/12	Ŋ	,	- NR		NEGATIVE
Z000787 HALLMAN, JAMES	-419-62-6827	ΓΙ	25-JAN-94	LM	90013 27-JAN-94 LE	LEISHMANIA JW 11/12	7		- NR		NEGATIVE
28479 RAYNER, GREGORY	-377-62-7801	BL	28-JAN-94	ΓM	90014 24-FEB-94 LE	LEISHMANIA JW 11/12	7	,	- NR		NEGATIVE
28480 RAYNER, GREGORY	-377-62-7801	ВМ	28-JAN-94	ГМ	90014 24-FEB-94 LE	LEISHMANIA JW 11/12	64		- NR		NEGATIVE
28976 SCHUENEMAN, MATTHEW D	ı	BL	14-FEB-94	I.M	90014 01-MAR-94 LE	LEISHMANIA JW 11/12	κį	,	- NR		NEGATIVE
28977 SCHUENEMAN, MATTHEW D	,	BL	14-FEB-94	I.M	90014 01-MAR-94 LE	LEISHMANIA JW 11/12	7	,	- NR		NEGATIVE
29034 HAYNESWORTH, WILLIE	-340-72-3179	ВМ	22-FEB-94	LM	90014 01-MAR-94 LE	LEISHMANIA JW 11/12	ci		- NR		NEGATIVE
29141 LYNN, KENNY	-465-35-8434	OT	17-FEB-94	LM	90014 01-MAR-94 LE	LEISHMANIA JW 11/12	7	+	+ NR		POSITIVE
29142 CRIBBS, JAMES	-262-29-5975	ВМ	17-FEB-94	LM	90014 01-MAR-94 LE	LEISHMANIA JW 11/12	ci.	ı	- EN		NEGATIVE
Z000788 40261,	•	BL	27-JAN-94	IIM	90014 24-FEB-94 LE	LEISHMANIA JW 11/12	7	,	- NR		NEGATIVE

Spec ID Patient Name	FPC + SSN	Spec Type	Received	Study	Panel Assay Date Virus	Virus	Primer	Tube # 1	Tube # 2 I	Int Comments	Final Result
2000789 40262,		BM	27-JAN-94	I.M.	90014 24-FEB-94	LEISHMANIA JW 11/12	N 11/12	t t 1 1	! ! ! !	NR	NEGATIVE
Z000790 40271,	1	ВМ	28-JAN-94	LM	90014 24-FEB-94	LEISHMANIA JW 11/12	W 11/12	1	1	NR	NEGATIVE
Z000791 40321,	ı	TC	01-FEB-94	ΓM	90014 24-FEB-94	LEISHMANIA JW 11/12	W 11/12	ı	1	NR	NEGATIVE
Z000792 40331,	ı	BL	02-FEB-94	LM	90014 24-FEB-94	LEISHMANIA JW 11/12	W 11/12	1	ı	NR	NEGATIVE
Z000793 40332,	1	BĽ	02-FEB-94	IIM	90014 24-FEB-94	LEISHMANIA JW 11/12	W 11/12	ı	1	NR	NEGATIVE
Z000795 40341,	1	BL	04-FEB-94	EM	90014 24-FEB-94	LEISHMANIA JW 11/12	W 11/12	•	Į	NR	NEGATIVE
2000796 40342,	ı	ВМ	04-FEB-94	ГМ	90014 24~FEB-94	LEISHMANIA JW 11/12	W 11/12	1	ı	NR	NEGATIVE
Z000797 40343,	ı	ВМ	04-FEB-94	ГМ	90014 24~FEB-94	LEISHMANIA JW 11/12	4 11/12	1	ı	NR	NEGATIVE
Z000798 BV4 DO,	ſ	SM	04-FEB-94	LM	90014 24-FEB-94	LEISHMANIA JW 11/12	W 11/12	+	+	RE	POSITIVE
Z000799 BP1 DO,	ı	SM	04-FEB-94	ГМ	90014 24~FEB-94	LEISHMANIA JW 11/12	4 11/12	1	ı	NR	NEGATIVE
2000800 ЛН,	ı	SM	04-FEB-94	ГМ	90014 24~FEB-94	LEISHMANIA JW 11/12	4 11/12	1	ı	NR	NEGATIVE
Z000801 B5 DO,	1	SM	04-FEB-94	ГМ	90014 24-FEB-94	LEISHMANIA JW 11/12	11/12	ı	ı	NR	NEGATIVE
Z000802 AS DO,	ı	SM	04-FEB-94	ГМ	90014 24-FEB-94	LEISHMANIA JW 11/12	11/12	·	ı	NR	NEGATIVE
Z000820 WILLIAMS, THOMAS	-441-46-2127	OT	18-FEB-94	ΨΊ	90014 01-MAR-94	LEISHMANIA JW 11/12	V 11/12	r	ı	NR	NEGATIVE
Z000822 LYON, KENNY	-465-35-8434	OI	23-FEB-94	LM	90014 01-MAR-94	LEISHMANIA JW 11/12	11/12	•	1	NR	NEGATIVE
28852 WADDELL, DIRK	20-343-56-3223	OT	08-FEB-94	ГМ	90015 14-FEB-94	LEISHMANIA JW 11/12	11/12	•	1	NR	NEGATIVE
28876 40401,	ı	BL	09-FEB-94	ITM	90015 14-FEB-94	LEISHMANIA JW 11/12	11/12	1	i	NR	NEGATIVE
28877 40402,	ı	BM	09-FEB-94	ГW	90015 14-FEB-94	LEISHMANIA JW 11/12	V 11/12	r	1	NR	NEGATIVE
28910 LYON, KENNY	-465-35-8434	BL	10-FEB-94	ГМ	90015 14-FEB-94	LEISHMANIA JW 11/12	11/12	,	1	NR	NEGATIVE
Z000803 40391,	1	BL	07-FEB-94	Ι'Μ	90015 14-FEB-94	LEISHMANIA JW 11/12	11/12			NR	NEGATIVE
Z000804 40392,	ı	BL	07-FEB-94	LM	90015 14-FEB-94	LEISHMANIA JW 11/12	11/12	i	1	NR	NEGATIVE
2000805 40393,	•	BL	07-FEB-94	LM	90015 14-FEB-94	LEISHMANIA JW 11/12	11/12	,	1	NR	NEGATIVE
Z000806 40394,	ı	BL	07-FEB-94	ГМ	90015 14-FEB-94	LEISHMANIA JW 11/12	11/12	ι	1	NR	NEGATIVE
Z000807 40395,	ı	BL	07-FEB-94	LM	90015 14-FEB-94	LEISHMANIA JW 11/12	11/12	,	•	NR	NEGATIVE

Spec ID Patient Name	FPC + SSN	Spec	Received Date	Study	Panel Assay Date Virus	Virus	Primer	Tube # 1	Tube # 2 Int	Comments	Final Result
Z000808 40396,	; ; ; ; ;	BL	07-FEB-94	I.M.	90015 14-FEB-94	LEISHMANIA JW 11/12	TW 11/12] 	THE THE	8	NEGATIVE
Z000809 40397,	1	BL	07-FEB-94	IM	90015 14-FEB-94	LEISHMANIA JW 11/12	TW 11/12	i	- NR	e,	NEGATIVE
Z000810 40398,	1	BL	07-FEB-94	LM	90015 14-FEB-94	LEISHMANIA JW 11/12	W 11/12	1	- NR	r.	NEGATIVE
Z000811 40399,	1	BL	07-FEB-94	ILM	90015 14-APR-94	LEISHMANIA JW 11/12	TW 11/12	ı	- NR	r.	NEGATIVE
2000812 403910,	ı	BL	07-FEB-94	Ϊ́Μ	90015 14-FEB-94	LEISHMANIA JW 11/12	TW 11/12	•	- NR	~	NEGATIVE
Z000813 403911,	ľ	BL	07-FEB-94	ГМ	90015 14-FEB-94	LEISHMANIA JW 11/12	W 11/12	ı	, RN	~	NEGATIVE
2000814 403912,	1	BĽ	07-FEB-94	ΓW	90015 14-FEB-94	LEISHMANIA JW 11/12	TW 11/12	ı	- RR	~	NEGATIVE
Z000815 403913, ·	ı	BĽ	07-FEB-94	LIM	90015 14-FEB-94	LEISHMANIA JW 11/12	W 11/12	ı	- NR	~	NEGATIVE
Z000816 403914,	1	BL	07-FEB-94	ΓW	90015 14-FEB-94	LEISHMANIA JW 11/12	W 11/12	ı	- NR	~	NEGATIVE
2000817 40411,	ı	OT	10-FEB-94	ГМ	90015 14-FEB-94	LEISHMANIA JW 11/12	W 11/12	ı	- NR	~	NEGATIVE
29255 40551,	ŧ	BL	25-FEB-94	ГМ	90016 21-MAR-94	LEISHMANIA JW 11/12	W 11/12	ı	- NR	~	NEGATIVE
29256 40552,	3	BL	25-FEB-94	ГМ	90016 21-MAR-94	LEISHMANIA JW	W 11/12	ı	- NR	~	NEGATIVE
29257 40553,		BL	25-FEB-94	LM	90016 21-MAR-94	LEISHMANIA JW 11/12	W 11/12	ı	- NR	N 70% OF TOTAL VOLUME	NEGATIVE
29258 40554,	t	BL	25-FEB-94	Ϊ́Μ	90016 21-MAR-94	LEISHMANIA JW	W 11/12	ı	- NR	N 95% OF TOTAL VOLUME	NEGATIVE
29259 40555,	ı	BL	25-FEB-94	IM	90016 21-MAR-94	LEISHMANIA JW 11/12	W 11/12	ı	- NR	A 45% OF TOTAL VOLUME	NEGATIVE
29260 40556,	1	BL	25-FEB-94	LM	90016 21-MAR-94	LEISHMANIA JW 11/12	W 11/12	t	- NR	30% OF TOTAL VOLUME	NEGATIVE
29261 40557,	1	BL	25~FEB-94	I.M	90016 21-MAR-94	LEISHMANIA JW 11/12	W 11/12	ı	- NR	35% OF TOTAL VOLUME	NEGATIVE
29262 40558,	1	BI	25-FEB-94	LiM	90016 21-MAR-94	LEISHMANIA JW 11/12	W 11/12		- NR	35% OF TOTAL VOLUME	NEGATIVE
29264 405510,	ı	BL	25-FEB-94	LIM	90016 21-MAR-94	LEISHMANIA JW 11/12	W 11/12	ı	- NR	40% OF TOTAL VOLUME	NEGATIVE
29265 405511,	ı	BL	25-FEB-94	IM	90016 21-MAR-94	LEISHMANIA JW 11/12	W 11/12	1	- NR	SOR OF TOTAL VOLUME	NEGATIVE
29266 405512,	t	BL	25-FEB-94	ГМ	90016 21-MAR-94	LEISHMANIA JW 11/12	W 11/12	ı	- NR	SO% OF TOTAL VOLUME	NEGATIVE
29267 405513,	ŧ	BL	25-FEB-94	LM	90016 21-MAR-94	LEISHMANIA JW 11/12	W 11/12	ţ	- NR	55% OF TOTAL VOLUME	NEGATIVE
29268 405514,	•	BL	25-FEB-94	LM	90016 21-MAR-94	LEISHMANIA JW 11/12	W 11/12	;	- NR		NEGATIVE
29269 405515,	ı	BL	25-FEB-94	LM	90016 21-MAR-94	LEISHMANIA JW 11/12	W 11/12	ı	- NR	75% OF TOTAL VOLUME	NEGATIVE

PCR Assay Results: LM

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Spec II	Spec ID Patient Name	FPC + SSN	Spec Recer Type Date	Spec Received Type Date	Study	Panel Assay Date Virus	Virus	Primer	Tube # 1	Tube # 2 In	Int G	Comments	Final Result
29270	405516,		BL	25-FEB-94	I.M.	90016 21-MAR-94	LEISHMANIA JW 11/12	TW 11/12	, i		NR .	70% OF TOTAL VOLUME	NEGATIVE
29271	405517,		BĽ	25-FEB-94	ΓM	90016 21-MAR-94	LEISHMANIA JW 11/12	JW 11/12	1	,	NR.	20% OF TOTAL VOLUME	NEGATIVE
29272	405518,	1	BL	25-FEB-94	ГМ	90016 21-MAR-94	LEISHMANIA JW 11/12	TW 11/12	1	1	MR	31% OF TOTAL VOLUME	NEGATIVE
29273	405519,	ı	BĽ	25-FEB-94	LM	90016 21-MAR-94	LEISHMANIA JW 11/12	TW 11/12	1	-	MR	55% OF TOTAL VOLUME	NEGATIVE
29274	405520,	ı	BĽ	25-FEB-94	ΓW	90016 21-MAR-94	LEISHMANIA JW 11/12	JW 11/12	1	-	NR	27% OF TOTAL VOLUME	NEGATIVE
29275	405521,	1	BĽ	25-FEB-94	ΓW	90016 21-MAR-94	LEISHMANIA JW 11/12	TW 11/12	ı	,	N.	40% OF TOTAL VOLUME	NEGATIVE
29276	405522,	•	BL	25-FEB-94	LM	90016 21-MAR-94	LEISHMANIA JW 11/12	TW 11/12	ı	1	MR.		NEGATIVE
29277	405523,	1.	BĽ	25-FEB-94	I.M	90016 21-MAR-94	LEISHMANIA JW 11/12	TW 11/12	ı	-	MR	20% OF TOTAL VOLUME	NEGATIVE
29278	405524,		BL	25-FEB-94	I'M	90016 21-MAR-94	LEISHMANIA JW 11/12	TW 11/12	1	1	MR		NEGATIVE
29279	405525,	1	BI.	25-FEB-94	W'I	90016 21-MAR-94	LEISHMANIA JW 11/12	TW 11/12	ı	1	MR	75% OF TOTAL VOLUME	NEGATIVE
29280	405526,	•	BL :	25-FEB-94	ГМ	90016 21-MAR-94	LEISHMANIA JW 11/12	TW 11/12	ı	,	MR		NEGATIVE
29281	405527,	1	BI.	25-FEB-94	ΓM	90016 21-MAR-94	LEISHMANIA JW 11/12	TW 11/12	ı	ı	E.		NEGATIVE
29282	405528,	1	BL ,	25-FEB-94	LM	90016 21-MAR-94	LEISHMANIA JW 11/12	TW 11/12	1	1	麗		NEGATIVE
29283	405529,	i	BL	25-FEB-94	ΓM	90016 24-MAR-94	LEISHMANIA JW	W 11/12	I	1	NR.	-	NEGATIVE
29284	405530,	•	BL	25-FEB-94	LM	90016 24-MAR-94	LEISHMANIA JW 11/12	W 11/12	1		æ		NEGATIVE
29285	405531,	1	BL	25-FEB-94	LM	90016 24-MAR-94	LEISHMANIA JW 11/12	W 11/12	ı		MR		NEGATIVE
29286	405532,	1	BL	25-FEB-94	I'W	90016 24-MAR-94	LEISHMANIA JW 11/12	W 11/12	,	-	NR.	25% OF TOTAL VOLUME 1	NEGATIVE
29287	405533,	t 1	BL	25-FEB-94	LM	90016 24-MAR-94	LEISHMANIA JW 11/12	TW 11/12	ı	-	NR.	30% OF TOTAL VOLUME 1	NEGATIVE
29288	405534,	1	BL	25-FEB-94	LM	90016 24-MAR-94	LEISHMANIA JW 11/12	W 11/12	,		NR.	50% OF TOTAL VOLUME 1	NEGATIVE
29289	405535,		BL	25-FEB-94	I.M	90016 24-MAR-94	LEISHMANIA JW 11/12	TW 11/12	•	-	MR	~	NEGATIVE
29290	405536,	,	BI.	25-FEB-94	LM	90016 24-MAR-94	LEISHMANIA JW 11/12	TW 11/12	1	-	NR.	40% OF TOTAL VOLUME 1	NEGATIVE
29291	405537,	ı	BL 3	25-FEB-94	LM	90016 24-MAR-94	LEISHMANIA JW 11/12	W 11/12		1	NR.	25% OF TOTAL VOLUME N	NEGATIVE
29292	405538,	ι	BI 3	25-FEB-94	ГМ	90016 24-MAR-94	LEISHMANIA JW 11/12	W 11/12	1	1	MR.	40% OF TOTAL VOLUME 1	NEGATIVE
29293	405539,	ı	BL 3	25-FEB-94	ПМ	90016 24-MAR-94	LEISHMANIA JW 11/12	W 11/12	i		NA.	45% OF TOTAL VOLUME N	NEGATIVE

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Spec II	Spec ID Patient Name	FPC + SSN	Spec	spec Received Type Date		Panel Assay Date Virus	Virus	Primer	Tube 1	Tube # 2 Int	t Comments	Final Result	
29294	405540,	i i i i	BL	25-FEB-94	IIM	90016 24-MAR-94	LEISHMANIA JW 11/12	W 11/12	:	- NR	R 55% OF TOTAL VOLUME	VOLUME NEGATIVE	
29295	405541,	- 1	BL	25-FEB-94	ΕM	90016 24-MAR-94	LEISHMANIA JW	W 11/12	1	- NR	35% OF	TOTAL VOLUME NEGATIVE	
29296	405542,		BL	25-FEB-94	ГW	90016 24-MAR-94	LEISHMANIA JW 11/12	W 11/12	1	- NR	35% OF	TOTAL VOLUME NEGATIVE	
29297	405543,	•	BL	25-FEB-94	Ϊ́Μ	90016 24-MAR-94	LEISHMANIA JW 11/12	W 11/12	1	- NR	20% OF	TOTAL VOLUME NEGATIVE	
29298	405544,		BL	25-FEB-94	IIM	90016 24-MAR-94	LEISHMANIA JW 11/12	W 11/12	1	- NR	45% OF	TOTAL VOLUME NEGATIVE	
29299	405545,	ı	BL	25-FEB-94	ГW	90016 24-MAR-94	LEISHMANIA JW 11/12	W 11/12	ı	- NR	35\$ OF	TOTAL VOLUME NEGATIVE	
29300	405546,	•	BL	25-FEB-94	ГМ	90016 24-MAR-94	LEISHMANIA JW 11/12	W 11/12	ı	- NR	25%	OF RIOTAL VOLUME NEGATIVE	
29301	405547,	•	BL	25-FEB-94	Lim	90016 24-MAR-94	LEISHMANIA JW 11/12	W 11/12		- NR	к.	NEGATIVE	
29302	405548,	,	BL	25-FEB-94	LM	90016 24-MAR-94	LEISHMANIA JW 11/12	W 11/12	1	- NR	κ.	NEGATIVE	
29303	405549,	ı	BL	25-FEB-94	LM	90016 24-MAR-94	LEISHMANIA JW 11/12	W 11/12	ı	- NR	~	NEGATIVE	
29304	MALDONADO, TONY	r	BL	25-FEB-94	IIM	90016 24-MAR-94	LEISHMANIA JW 11/12	W 11/12	+	+ RE	M	POSITIVE	
29384	CHEPSERY, CHENNGETICH	ı	OT	03-MAR-94	ΓM	90016 24-MAR-94	LEISHMANIA JW	W 11/12	ı	- NR	~	NEGATIVE	
29385	PORONJO, MARY	•	OT	04-MAR-94	ΓM	90016 24-MAR-94	LEISHMANIA JW 11/12	¥ 11/12	-/+	+/- RE	M	POSITIVE	
29387	SAMOSN, GRACE		OT	04-MAR-94	E.M.	90016 24-MAR-94	LEISHMANIA JW 11/12	4 11/12	+	+ RE	M	POSITIVE	
29388	KIPKEMEI, CHEROP		OT	04-MAR-94	ГМ	90016 24-MAR-94	LEISHMANIA JW 11/12	4 11/12	+	+ RE	м	POSITIVE	
29389	BARTENJO, CHRISTINE	•	OT	04-MAR-94	LM	90016 24-MAR-94	LEISHMANIA JW 11/12	4 11/12	i	- NR	~	NEGATIVE	
29390	KANDAGOR, PERIS	•	OT	04-MAR-94	LM	90016 24-MAR-94	LEISHMANIA JW 11/12	11/12	ı	, NR	~	NEGATIVE	
29375	GOULD, MICHAEL	-227-74-3133	BM	04-MAR-94	ΓM	90017 19-APR-94	LEISHMANIA JW 11/12	11/12		- NR	~	NEGATIVE	
29386	GOULD, MICHAEL	-227-74-3133	BL	04-MAR-94	LM	90017 19-APR-94	LEISHMANIA JW 11/12	V 11/12	ı	- NR	~	NEGATIVE	
29391	MAHER, JEROME	-361-42-2793	BL	04-MAR-94	WI	90017 19-APR-94	LEISHMANIA JW	4 11/12	ı	- NR	~	NEGATIVE	
29392	MAHER, JEROME	-361-42-2793	ВМ	04-MAR-94	I.M	90017 19-APR-94	LEISHMANIA JW 11/12	11/12	ı	- NR	~	NEGATIVE	
29393	WOOD, STEVE W	-594-20-7800	BL	04-MAR-94	ΓΜ	90017 19-APR-94	LEISHMANIA JW 11/12	11/12	1	- NR	-	NEGATIVE	
29394	WOOD, STEVE W	-594-20-7800	ВМ	04-MAR-94	ГМ	90017 19-APR-94	LEISHMANIA JW 11/12	11/12	ı	- NR		NEGATIVE	
29823	TOOLE, JAMES	-274-40-7928	BL	14-MAR-94	LM	90017 19-APR-94	LEISHMANIA JW 11/12	11/12	1	- E		NEGATIVE	

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Spec I	Spec ID Patient Name	FPC + SSN	Spec	Spec Received Type Date	Study	Panel Assay Date Virus	Virus	Primer	φ.	Tube # 2 I	Int Q	Comments	Final Result
29824	TOOLE, JAMES	-274-40-7928	BL	14-MAR-94	IIM	90017 19-APR-94	LEISHMANIA JW 11/12	11/12		!	NR.		NEGATIVE
29897	WADDELL, DIRK	20-343-56-3223	BL	21-MAR-94	ΓΙΜ	90017 19-APR-94	LEISHMANIA JW 11/12	11/12		,	NR.		NEGATIVE
29919	LIBERTY, SCHANEN	-450-47-5981	BL	22-MAR-94	ПM	90017 19-APR-94	LEISHMANIA JW	11/12	4	1	NR	45% OF TOTAL VOLUME 1	NEGATIVE
29948	LIBERTY, SCHANEN	-450-47-5981	BM	22-MAR-94	ΓM	90017 19-APR-94	LEISHMANIA JW 11/12	11/12	,	ı	MR		NEGATIVE
29959	40831,		BL	25-MAR-94	IM	90017 19-APR-94	LEISHMANIA JW 11/12	11/12	+	+	RE	15% OF TOTAL VOLUME	POSITIVE
29960	40832,	1	BL	25-MAR-94	I.M	90017 19-APR-94	LEISHMANIA JW 11/12	11/12	+	+	RE		POSITIVE
29961	40833,	1	BL	25-MAR-94	I.M	90017 19-APR-94	LEISHMANIA JW 11/12	11/12	1	1	E.	50% OF TOTAL VOLUME 1	NEGATIVE
29962	40834,		BL	25-MAR-94	I.M	90017 19-APR-94	LEISHMANIA JW 11/12	11/12	1	1	E	5% OF TOTAL VOLUME 1	NEGATIVE
29985	SCHVERMAN, KRISTIE L	-569-53-0637	BL	29-MAR-94	Ι'n	90017 19-APR-94	LEISHMANIA JW 11/12	11/12	1	1	NR.	ı	NEGATIVE
30105	SCHVERMAN, KRISTIE L	-569-53-0637	BL	29-MAR-94	IΜ	90017 19-APR-94	LEISHMANIA JW 11/12	11/12		1	NA NA	ı	NEGATIVE
30201	40901,	ı	BĽ	01-APR-94	LM	90017 19-APR-94	LEISHMANIA JW 11/12	11/12		1	NR.	4	NEGATIVE
30202	40902,	•	BL	01-APR-94	LiM	90017 19-APR-94	LEISHMANIA JW	11/12	,	,	NR.	Į.	NEGATIVE
30203	40903,	,	BL	01-APR-94	LM	90017 19-APR-94	LEISHMANIA JW	11/12	1	1	E.	ı	NEGATIVE
30204	40904,	,	ΒΓ	01-APR-94	ĽΜ	90017 19-APR-94	LEISHMANIA JW	11/12	1	1	MR	Z .	NEGATIVE
30205	40905,	t	BL	01-APR-94	LiM	90017 19-APR-94	LEISHMANIA JW 11/12	11/12	1		NR.	V.	NEGATIVE
30206	40906,	1	BL	01-APR-94	LM	90017 19-APR-94	LEISHMANIA JW 11/12	11/12	1	1	æ	ı	NEGATIVE
30207	40908,		BL	01-APR-94	LM	90017 19-APR-94	LEISHMANIA JW	JW 11/12	1	1	NA.	25% OF TOTAL VOLUME N	NEGATIVE
30208	40908,	ı	BL	01-APR-94	LM	90017 19-APR-94	LEISHMANIA JW 11/12	11/12		1	NR ,	25% OF TOTAL VOLUME N	NEGATIVE
30209	40909,	1	BL	01-APR-94	LM	90017 19-APR-94	LEISHMANIA JW 11/12	11/12		1	EN .	15% OF TOTAL VOLUME N	NEGATIVE
30210	409010,	1	BL	01-APR-94	LM	90017 19-APR-94	LEISHMANIA JW 11/12	11/12	í	1	NR .	15% OF TOTAL VOLUME N	NEGATIVE
30211	409011,	,	BL	01-APR-94	IIM	90017 19-APR-94	LEISHMANIA JW	JW 11/12	ı	1	NR.	30% OF TOTAL VOLUME N	NEGATIVE
30212	409012,	1	BL	01-APR-94	LM	90017 19-APR-94	LEISHMANIA JW 11/12	11/12	1	1	NR 8	80% OF TOTAL VOLUME N	NEGATIVE
30213	409013,	ı	BL	01-APR-94	LM	90017 19-APR-94	LEISHMANIA JW 11/12	11/12	1	1	NA N	20% OF TOTAL VOLUME N	NEGATIVE
30214	409014,	1	BĽ	01-APR-94	ГМ	90017 19-APR-94	LEISHMANIA JW 11/12	11/12			NR .	25% OF TOTAL VOLUME N	NEGATIVE

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Spec I	Spec ID Patient Name	FPC + SSN	Spec Type	Spec Received Type Date	Study	Panel Assay Date Virus	Virus	Primer	Tube # 1	Tube # 2]	Int	Comments	Final Result
30263	PAULSEN, KIM	-571-35-8120	BL	06-APR-94	L. M.	90017 19-APR-94	LEISHMANIA JW 11/12	W 11/12	.	1 1	NR.		NEGATIVE
30264	PAULSEN, KIM	-571-35-8120	BL	06-APR-94	ГМ	90017 19-APR-94	LEISHMANIA JW 11/12	W 11/12	1		N.		NEGATIVE
30265	CVC 39 EDTA,	1	ВĽ	06-APR-94	LM	90017 19-APR-94	LEISHMANIA JW 11/12	W 11/12	+	+	RE		POSITIVE
30266	CVC 37 EDTA,	1	BL	06-APR-94	LM	90017 19-APR-94	LEISHMANIA JW 11/12	W 11/12		ı	NR.		NEGATIVE
30267	CVC 39 HEPARIN,	ı	BL	06-APR-94	ΓΜ	90017 19-APR-94	LEISHMANIA JW 11/12	W 11/12	,	,	NR	5% OF TOTAL VOLUME	NEGATIVE
30268	CVC 40 HEPARIN,	•	BL	06-APR-94	ГМ	90017 19-APR-94	LEISHMANIA JW 11/12	W 11/12		1	æ	20% OF TOTAL VOLUME	NEGATIVE
30269	CVC 37 HEPARIN,	1	BĽ	06-APR-94	ГМ	90017 19-APR-94	LEISHMANIA JW 11/12	W 11/12	ι	1	NR	10% OF TOTAL VOLUME	NEGATIVE
30270	CVC 40 EDIA,	ı	BĽ	06-APR-94	I.M	90017 19-APR-94	LEISHMANIA JW 11/12	W 11/12	ı		NR		NEGATIVE
30271	CVC 36 HEPARIN,	1	BL	06-APR-94	I'M	90017 19-APR-94	LEISHMANIA JW 11/12	W 11/12	ı		MR	10% OF TOTAL VOLUME	NEGATIVE
30272	CVC 34 HEPARIN,	ı	BL	06-APR-94	IIM	90017 19-APR-94	LEISHMANIA JW 11/12	W 11/12	,	ı	MR		NEGATIVE
30273	CVC 36 EDTA,	1	BL	06-APR-94	IIM	90017 19-APR-94	LEISHMANIA JW 11/12	W 11/12	ı		NR		NEGATIVE
30274	CVC 34 EDTA,	ı	BL	06-APR-94	IIM	90017 19-APR-94	LEISHMANIA JW 11/12	W 11/12	1		NR.		NEGATIVE
30289	BALOGH, STEPHEN	-160-58-7391	BL	06-APR-94	IIM	90017 19-APR-94	LEISHMANIA JW 11/12	W 11/12	1	1	NR.		NEGATIVE
30290	BALOGH, STEPHEN	-160-58-7391	BM	06-APR-94	I.M	90017 19-APR-94	LEISHMANIA JW 11/12	W 11/12			NR		NEGATIVE
30423	40981,		BL	08-APR-94	Ι™	90017 19-APR-94	LEISHMANIA JW 11/12	W 11/12	+	+	RE		POSITIVE
30424	40982,	ı	BL	08-APR-94	I.M	90017 19-APR-94	LEISHMANIA JW 11/12	W 11/12	+	+	RE		POSITIVE
30425	KRAMER, GARY	-178-42-7910 I	BL	08-APR-94	ΨΊ	90017 19-APR-94	LEISHMANIA JW 11/12	W 11/12	ı	,	展		NEGATIVE
30450	NORTHEY, DUWAYNE F	20-395-84-5069 BL		13-APR-94	I.M	90017 19-APR-94	LEISHMANIA JW 11/12	W 11/12	1	1	R		NEGATIVE
30451	NORTHEY, DUWAYNE F	20-395-84-5069 BM		13-APR-94	LM	90017 19-APR-94	LEISHMANIA JW 11/12	W 11/12	1	1	NR		NEGATIVE
30467	STECKBECK, DEAN	20-179-54-7414 LI		13-APR-94	LM	90017 19-APR-94	LEISHMANIA JW 11/12	W 11/12	1	í	N.	-	NEGATIVE
30468	CHOVERI, ROY	20-215-70-5824 BL		13-APR-94	LM	90017 19-APR-94	LEISHMANIA JW 11/12	W 11/12	•	ţ	NR.		NEGATIVE
30469	CHOVERI, ROY	20-215-70-5824 BM		13-APR-94	IM	90017 19-APR-94	LEISHMANIA JW 11/12	W 11/12	ı	1	Ä	1	NEGATIVE
28911	LYON, KENNY	-465-35-8434 I	ВМ	10-FEB-94	LM	90018 02-MAY-94	LEISHMANIA JW 11/12	W 11/12		1	NR.	·	NEGATIVE
29033	HAYNESWORTH, WILLIE	-340-72-3179 E	BL	22~FEB-94	ГМ	90018 02-MAY-94	LEISHMANIA JW 11/12	W 11/12			NR.	-	NEGATIVE

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Spec ID	Spec ID Patient Name	FPC + SSN T	Spec Received Type Date	Study	Panel Assay Date Virus		Primer	tube #	Tube # 2 Int	Comments	Final Result
29263	40559,	E E E E E E E E E E E E E E E E E E E	BL 25-FEB-94	I.M.	90018 02-MAY-94	LEISHMANIA JW 11/12	11/12		- NR		NEGATIVE
30621	LATHAM, TRAVIS	20-006-82-9838 S	SK 19-APR-94	IIM	90018 02-MAY-94	LEISHMANIA JW 11/12	11/12	+	+ RE	m	POSITIVE
30622	CROFT, JOSHUA	20-402-08-9845 S	SK 20-APR-94	ΓM	90018 02-MAY-94	LEISHMANIA JW 11/12	11/12	+	+ RE	M	POSITIVE
30660	BOWLES, HERBERT	20-138-50-6441 LI	I 19-APR-94	ΓM	90018 02-MAY-94	LEISHMANIA JW 11/12	11/12	í	- NR	~	NEGATIVE
30802	41161,	M 1	BL 26-APR-94	ΓΜ	90018 02-MAY-94	LEISHMANIA JW 11/12	11/12	+	+ RE	m	POSITIVE
30803	41162,	Ø.	BL 26-APR-94	I'M	90018 02-MAY-94	LEISHMANIA JW 11/12	11/12	+	+ RE	61	POSITIVE
30804	41163,	Ø.	BL 26-APR-94	IIM	90018 02-MAY-94	LEISHMANIA JW 11/12	11/12	+	+ RE	fa.	POSITIVE
30805	41164,	EL .	BL 26-APR-94	LM	90018 02-MAY-94	LEISHMANIA JW 11/12	11/12	1	- NR		NEGATIVE
30806	PLUMMER, SCOTT	20-018-48-7159 SK	K 26-APR-94	ΓM	90018 02-MAY-94	LEISHMANIA JW 11/12	11/12	+	+ RE	fo	POSITIVE
Z000795	40341,	e e	BL 04~FEB-94	LM	90018 02-MAY-94	LEISHMANIA JW 11/12	11/12	ı	- NR	~	NEGATIVE
2000821	Z000821 KAPPLAN, BARRY	20-206-52-6668 LN	N 18-FEB-94	LM	90018 02-MAY-94	LEISHMANIA JW 11/12	11/12	1	, NR		NEGATIVE
30911	41221,	m:	BL 02-MAY-94	ΓΜ	90019 12-JUL-94	LEISHMANIA JW 111/12i	111/121	+	+ RE	ra.	POSITIVE
30912	41222,	EQ.	BL 02-MAY-94	ΓM	90019 12-JUL-94	LEISHMANIA JW 111/12i	111/12i	+	+ RE	ra.	POSITIVE
30913	41223,	- BL	L 02-MAY-94	ΓΜ	90019 12-JUL-94	LEISHMANIA JW 111/12i	111/121	1	NR		NEGATIVE
30914	41224,	- BL	L 02-MAY-94	ΓΜ	90019 12-JUL-94	LEISHMANIA JW 111/12i	11i/12i		- NR		NEGATIVE
30915	41225,	- BL	L 02-MAY-94	LM	90019 12-JUL-94	LEISHMANIA JW 111/12i	111/12i	+	+ RE	FO.	POSITIVE
30916	41226,	. BL	L 02-MAY-94	ΓW	90019 12-JUL-94	LEISHMANIA JW 111/12i	111/121	+	+ RE		POSITIVE
30917	41227,	- BL	L 02-MAY-94	LM	90019 12-JUL-94	LEISHMANIA JW 111/12i	111/121	+	+ RE		POSITIVE
30918	41228,	e I	BL 02-MAY-94	LM	90019 12-JUL-94	LEISHMANIA JW 111/12i	111/121		- NR		NEGATIVE
30919	41229,	- BL	L 02-MAY-94	LM	90019 12-JUL-94	LEISHMANIA JW 111/12i	111/12i	ı	- NR		NEGATIVE
30920	412210,	- BL	L 02-MAY-94	ГМ	90019 12-JUL-94	LEISHMANIA JW 111/12i	111/121	+	+ RE	_N	POSITIVE
30959	PLUMMER, SCOTT	20-018-48-7159 SK	K 05-MAY-94	ΙM	90019 08-JUL-94	LEISHMANIA JW 111/12i	111/121	+	+ RE	S	POSITIVE
30990	41261,	20- BL	L 06-MAY-94	ΓM	90019 12-JUL-94	LEISHMANIA JW 111/12i	11i/12i	ı	- NR		NEGATIVE
30991 4	41262,	20- BL	L 06-MAY-94	ГМ	90019 12-JUL-94	LEISHMANIA JW 111/121	111/121	+	+ RE	N.	POSITIVE

				Probe JW 14							
Spec I	Spec ID Patient Name	SP PPC + SSN TY	Spec Received Type Date	Study	Panel Assay Date Virus	Virus Primer		Tube Tub # 1 # 2	Tube # 2 Int	Comments	Final Result
30992	41263,	20- BL	06-MAY-94	LiM	90019 12-JUL-94	LEISHMANIA JW 11i/12i	1	+	RE		POSITIVE
30993	41264,	20- BL	06-MAY-94	ГW	90019 12-JUL-94	LEISHMANIA JW 111/12i		+	RE		POSITIVE
30994	41265,	20- BL	, 06-MAY-94	ΓM	90019 12-JUL-94	LEISHMANIA JW 111/12i		+	RE	SEE REPORT	POSITIVE
31015	BOYLE, SEAN P	20~226-19-1869 BL	08-MAY-94	ГМ	90019 08-JUL-94	LEISHMANIA JW 111/12i	121	t	MR	SEE REPORT	NEGATIVE
31016	BOYLE, SEAN P	20-226-19-1869 BM	I 08-MAY-94	ГМ	90019 08-JUL-94	LEISHMANIA JW 11i/12i	/12i	'	MR	SEE REPORT	NEGATIVE
31017	SANTAFERRARA, JAMES P	20-057-50-1286 SP	08-MAY-94	ГМ	90019 12-JUL-94	LEISHMANIA JW 111/12i	/12i .	'	NR		NEGATIVE
31018	SANTAFERRARA, JAMES P	20-057-50-1286 SP	08-MAY-94	гw	90019 08-JUL-94	LEISHMANIA JW 11i/12i	/12i -		MR		NEGATIVE
31019	BACHMAN, JOHN	20-205-42-4875 LN	10-MAY-94	LM	90019 08-JUL-94	LEISHMANIA JW 11i/12i	/12i -		NR		NEGATIVE
31047	ABDALLAH, BASSAM K	20- SK	11-MAY-94	LM	90019 08-JUL-94	LEISHMANIA JW 11i/12i	/12i -	,	MR	SEE REPORT	NEGATIVE
31048	LOCKETT, NORMA	20-450-53-3473 BL	11-MAY-94	LM	90019 08-JUL-94	LEISHMANIA JW 11i/12i	/12i -		Ę.	SEE REPORT	NON-DIAG
31049	LOCKETT, NORMA	20-450-53-3473 BM	11-MAY-94	LM	90019 08-JUL-94	LEISHMANIA JW 11i/12i	/12i -		Š	SEE REPORT	NON-DIAG
31051	41301,	20- BL	10-MAY-94	LM	90019 12-JUL-94	LEISHMANIA JW 11i/12i	/12i -		NR	30% OF SUGG. NUMBER	NEGATIVE
31052	41302,	20- BL	10-MAY-94	LM	90019 12-JUL-94	LEISHMANIA JW 111/12i	/12i +	+	RE		POSITIVE
31053	CROSSMAN, STEWART	20-025-48-6417 BL	10-MAY-94	LM	90019 08-JUL-94	LEISHMANIA JW 111/12i	/12i -		NR		NEGATIVE
31054	CROSSMAN, STEWART	20-025-48-6417 BM	10-MAY-94	LM	90019 08-JUL-94	LEISHMANIA JW 11i/12i	/12i -		NR.		NEGATIVE
31085	BOYLE, SEAN P	20-226-19-1869 LN	16-MAY-94	ГМ	90019 08-JUL-94	LEISHMANIA JW 11i/12i	/12i		MR		NEGATIVE
31356	WILLIAM, FRADY D	-239-37-0026 BL	20-MAY-94	ΓM	90019 08-JUL-94	LEISHMANIA JW 111/12i	/12i -		MR		NEGATIVE
31357	WILLIAM, FRADY D	-239-37-0026 BM	20-MAY-94	IIM	90019 08-JUL-94	LEISHMANIA JW 11i/12i	'12i -		N.		NEGATIVE
31379	41401,	- BL	23-MAY-94	IIM	90019 08-JUL-94	LEISHMANIA JW 111/12i	/12i +	+	RE		POSITIVE
31380	41402,	BL	23-MAY-94	ΓM	90019 08-JUL-94	LEISHMANIA JW 11i/12i	/12i +	+	RE		POSITIVE
31381	41404,	- BL	23-MAY-94	I'M	90019 08-JUL-94	LEISHMANIA JW 11i/12i	12i -		MR		NEGATIVE
31382	41405,	- BL	23-MAY-94	I'M	90019 08-JUL-94	LEISHMANIA JW 111/12i	12i -		MR		NEGATIVE
31505	CHIPLEY, JOSHUA W	20-564-33-6887 BL	31-MAY-94	I'M	90019 12-JUL-94	LEISHMANIA JW 111/12i	12i -		NR		NEGATIVE
31506	CHIPLEY, JOSHUA W	20-564-33-6887 BM	31-MAY-94	ΓM	90019 08-JUL-94	LEISHMANIA JW 11i/12i	'12i -		NR		NEGATIVE

Report Date:

				-	TOTAL DATE							
Spec I	Spec ID Patient Name	FPC + SSN	Spec Recei Type Date	lved	Study	Panel Assay Date	Virus	Primer	Tube T # 1 #	Tube # 2 Int	Comments	Final Result
31529	MALLOY, VICTOR	20-308-60-0996 BL		01-JUN-94	W'I	90019 12-JUL-94	LEISHMANIA JW 11i/12i	 W 11i/12i	!	- NR	SEE REPORT	NEGATIVE
31530	MALLOY, VICTOR	20-308-60-0996 BM		02-JUN-94	ГМ	90019 12-JUL-94	LEISHMANIA JW 11i/12i	¥ 11i/12i	ı	, NR		NEGATIVE
31553	COSNER, BRUCE	ı	ВМ	02-JUN-94	ГМ	90019 12-JUL-94	LEISHMANIA JW 111/12i	W 111/12i	ı	- MR	SEE REPORT	NEGATIVE
31554	CHIPLEY, JOSHUA W	20-564-33-6887 SK		02-JUN-94	I.M	90019 08-JUL-94	LEISHMANIA JW 11i/12i	W 11i/12i	ı	- MR		NEGATIVE
31731	MARTINEZ, ARGUELIO	-581-06-2752	BM	08-JUN-94	ГМ	90019 08-JUL-94	LEISHMANIA JW 11i/12i	W 111/12i	1	- NR		NEGATIVE
31749	HAMDEN, CHARLES	-381-58-4162	BL (09-JUN-94	ГМ	90019 12-JUL-94	LEISHMANIA JW 111/12i	W 11i/12i	ı	, NR	20% OF SUGG. NUMBER	NEGATIVE
31750	HAMDEN, CHARLES	-381-58-4162	BM	09-JUN-94	ГМ	90019 08-JUL-94	LEISHMANIA JW 111/12i	¥ 111/12i	ι	- NR	SEE REPORT	NEGATIVE
31751	JEMIOLA, RICHARD	-156-40-2576	II	09-JUN-94	I.M	90019 08-JUL-94	LEISHMANIA JW 11i/12i	¥ 11i/12i	ı	- NR	SEE REPORT	NEGATIVE
31797	MAZUR, JOACHIM	-416-86-2154	BL	16-JUN-94	LM	90019 08-JUL-94	LEISHMANIA JW 111/12i	W 11i/12i	ı	- NR	SEE REPORT	NEGATIVE
29033	HAYNESWORTH, WILLIE	-340-72-3179	BL ;	22-FEB-94	ΓΜ	90020 28-JUL-94	LEISHMANIA JW 111/12i	4 11i/12i	ı	- NR		NEGATIVE
30802	41161,	1	BL ;	26-APR-94	ΓΜ	90020 28-JUL-94	LEISHMANIA JW 111/12i	4 11i/12i	+	+ RE		POSITIVE
30803	41162,	-	BL	26-APR-94	LM	90020 28-JUL-94	LEISHMANIA JW 11i/12i	¥ 11i/12i	+	+ RE		POSITIVE
30804	41163,	1	BL ,	26-APR-94	I.M	90020 28-JUL-94	LEISHMANIA JW 111/12i	v 11i/12i	+	+ RE		POSITIVE
30806	PLUMMER, SCOTT	20-018-48-7159 SK		26-APR-94	LM	90020 28-JUL-94	LEISHMANIA JW 111/12i	¥ 11i/12i	+	+ RE		POSITIVE
30995	41266,	20-	BL (06-MAY-94	LM	90020 01-AUG-94	LEISHMANIA JW 11i/12i	W 11i/12i	+	+ RE		POSITIVE
31753	TAYLOR, JAMES	-512-82-7559	LI .	10-JUN-94	LM	90020 01-AUG-94	LEISHMANIA JW 11i/12i	4 11i/12i	,	- NR		NEGATIVE
32325	54F,	-	BL 1	13-JUL-94	LM	90020 28-JUL-94	LEISHMANIA JW 111/12i	V 11i/12i		: NR		NEGATIVE
32326	53F,	,	BL 1	13-JUL-94	ΓM	90020 28-JUL-94	LEISHMANIA JW 111/12i	v 11i/12i	ı	- NR		NEGATIVE
32350	ZUPEC, JEFFREY	-	BM 1	12-JUL-94	I.M	90020 28-JUL-94	LEISHMANIA JW 111/12i	V 11i/12i	1	- NR		NEGATIVE
32351	GEIGER, MITCH	-529-63-0706	SK 1	13-JUL-94	ΓΜ	90020 28-JUL-94	LEISHMANIA JW 111/12i	f 11i/12i	1	, NR		NEGATIVE
32352	GEIGER, MITCH	-529-63-0706 I	BL 1	13-JUL-94	LM	90020 28-JUL-94	LEISHMANIA JW 11i/12i	v 11i/12i	1	- NR		NEGATIVE
32354	PERDUE, JAMES	-256-92-2772	BL 1	13-JUL-94	LM	90020 28-JUL-94	LEISHMANIA JW 111/12i	V 11i/12i	r	- NR		NEGATIVE
32376	419433,	t	SBL 1	13-JUL-94	ГМ	90020 01-AUG-94	LEISHMANIA JW 111/12i	V 111/12i	+	ONI -		INDETERMIN
32377	419432,	\ 1	SBL 1	13-JUL-94	ΓW	90020 01-AUG-94	LEISHMANIA JW 111/12i	111/121	+	QNI -		INDETERMIN

			200	Deceived	Probe JW 14							
Spec ID	Spec ID Patient Name	FPC + SSN	Type	Type Date	Study	Panel Assay Date Virus	e Virus	Primer	Tube # 1	Tube # 2 Int	Comments	Final Result
32378	419435,		SBL	13-JUL-94	IIM	90020 27-JUL-94	LEISHMANIA JW 11i/12i	/12i W 11i/12i	+	+ RE		POSITIVE
32379	419431,		SBL	13-JUL-94	LM	90020 27-JUL-94	LEISHMANIA JW 11i/12i	W 11i/12i	ı	- NR		NEGATIVE
32380	419436,	1	SBL	13-JUL-94	ГМ	90020 27~JUL-94	LEISHMANIA JW 111/12i	W 111/12i	1	- NR		NEGATIVE
32380	419436,	1	SBL	13-JUL-94	ГМ	90020 05-AUG-94	LEISHMANIA JW 11/12	W 11/12	1	- NR		NEGATIVE
32381	419434,	1	SBL	13-JUL-94	IM	90020 27-JUL-94	LEISHMANIA JW 111/12i	W 11i/12i	1	- NR		NEGATIVE
32381	419434,	4	SBL	13-JUL-94	ĽW	90020 05-AUG-94	LEISHMANIA JW 11/12	W 11/12		- NR		NEGATIVE
32382	419430,	1	SBL	13-JUL-94	LI.	90020 27-JUL-94	LEISHMANIA JW 11i/12i	W 11i/12i	+	+ RE		POSITIVE
32383	419429,	1	SBL	13-JUL-94	LM	90020 27-JUL-94	LEISHMANIA JW 11i/12i	W 11i/12i	1	, NR		NEGATIVE
32383	419429,	ı	SBL	13-JUL-94	LM	90020 05-AUG-94	LEISHMANIA JW 11/12	W 11/12		- NR		NEGATIVE
32384	419428,	•	SBL	13-JUL-94	Ϊ́Μ	90020 27-JUL-94	LEISHMANIA JW 11i/12i	W 11i/12i	1	- NR		NEGATIVE
32384	419428,	1	SBL	13-JUL-94	ΓW	90020 05-AUG-94	LEISHMANIA JW 11/12	W 11/12	1	- NR		NEGATIVE
32385	419427,	1	SBL	13-JUL-94	LM	90020 27-JUL-94	LEISHMANIA JW 111/12i	W 111/12i	1	ı RR		NEGATIVE
32385	419427,	1	SBL	13-JUL-94	LM	90020 05-AUG-94	LEISHMANIA JW 11/12	W 11/12	+	+ RE		POSITIVE
32386	419426,	1	SBL	13-JUL-94	ΓM	90020 27-JUL-94	LEISHMANIA JW 11i/12i	W 11i/12i	1	- ER		NEGATIVE
32386	419426,	1	SBL	13-JUL-94	LM	90020 05-AUG-94	LEISHMANIA JW 11/12	W 11/12	,	ı ER		NEGATIVE
32387	419425,	1	SBL	13-JUL-94	ΓM	90020 27-JUL-94	LEISHMANIA JW 11i/12i	W 11i/12i	1	, AR		NEGATIVE
32387	419425,	1	SBL	13-JUL-94	Γ.M	90020 05-AUG-94	LEISHMANIA JW 11/12	W 11/12	ı	- NR		NEGATIVE
32388	419423,	1	SBL	13-JUL-94	ĽМ	90020 01-AUG-94	LEISHMANIA JW 111/12i	W 11i/12i	+	ONI -	0	INDETERMIN
32389	419422,	t	SBL	13-JUL-94	LM	90020 01-AUG-94	LEISHMANIA JW 111/12i	W 11i/12i	+	+ RE		POSITIVE
32390	419424,	1	SBL	13-JUL-94	Ι'n	90020 27-JUL-94	LEISHMANIA JW 111/12i	W 11i/12i		- NR		NEGATIVE
32390	419424,	1	SBL	13-JUL-94	LM	90020 05-AUG-94	LEISHMANIA JW 11/12	W 11/12	1.	- NR		NEGATIVE
32391	419421,		SBL	13-JUL-94	ΓM	90020 27-JUL-94	LEISHMANIA JW 11i/12i	W 11i/12i	1	- NR		NEGATIVE
32391	419421,	ı	SBL	13-JUL-94	ГМ	90020 05-AUG-94	LEISHMANIA JW 11/12	W 11/12	+	+ RE		POSITIVE
32392	419419,	1	SBL	13-JUL-94	ГМ	90020 27-JUL-94	LEISHMANIA JW 111/121	W 11i/12i	1	E.		NEGATIVE

Spec II	Spec ID Patient Name	FPC + SSN	Spec Received Type Date	Study	Panel Assay Date Virus	Virus	Primer	Tube	Tube	Comments	Final Decult
32392	419419,	1 1 1 1 1 1 1	SBL 13-JUL-94	LM	90020 05-AUG-94	 LEISHMANIA JW 11/12	TW 11/12		. Z		NEGATIVE
32393	419420,	- 1	SBL 13-JUL-94	ĽМ	90020 27-JUL-94	LEISHMANIA JW 111/12i	TW 111/12i	ı	z	NR	NEGATIVE
32394	41941,	ı	SCU 13-JUL-94	ГМ	90020 27-JUL-94	LEISHMANIA JW 11i/12i	TW 111/121	ı	Z	NR	NEGATIVE
32394	41941,	,	SCU 13-JUL-94	LM	90020 05-AUG-94	LEISHMANIA JW 11/12	TW 11/12	+	+	RE	POSITIVE
32395	41942,	ı	SCU 13-JUL-94	LM	90020 27-JUL-94	LEISHMANIA JW 11i/12i	TW 11i/12i	+	+	RE	POSITIVE
32396	41943,	,	SCU 13-JUL-94	LIM	90020 27-JUL-94	LEISHMANIA JW 111/12i	TW 111/12i	+	+	RE	POSITIVE
32397	41944,	1	SCU 13-JUL-94	LM	90020 01-AUG-94	LEISHMANIA JW 111/12i	TW 111/12i	+	+ RE	ы	POSITIVE
32398	41945,	•	SCU 13-JUL-94	LM	90020 27-JUL-94	LEISHMANIA JW 111/12i	TW 111/12i	+	+	RE	POSITIVE
32399	41946,	1	SCU 13-JUL-94	LM	90020 27-JUL-94	LEISHMANIA JW 111/12i	TW 111/12i	ı	Z	NR	NEGATIVE
32399	41946,	1	SCU 13-JUL-94	LM	90020 05-AUG-94	LEISHMANIA JW 11/12	TW 11/12	ı	- NR	œ	NEGATIVE
32400	41948,	1	SCU 13-JUL-94	ĽΜ	90020 05-AUG-94	LEISHMANIA JW 11/12	TW 11/12	ı	- NR	œ	NEGATIVE
32400	41948,	1	SCU 13-JUL-94	ΓM	90020 01-AUG-94	LEISHMANIA JW 111/12i	TW 111/12i	+	H	CNI	INDETERMIN
32501	41948,	1	SCU 13-JUL-94	ГМ	90020 27-JUL-94	LEISHMANIA JW 111/12i	W 11i/12i	+	+ RE	M	POSITIVE
32502	41949,	1	SCU 13-JUL-94	LM	90020 27-JUL-94	LEISHMANIA JW 111/12i	W 11i/12i	+	+ RE	£u	POSITIVE
32503	419410,	1	SCU 13-JUL-94	LM	90020 27-JUL-94	LEISHMANIA JW 111/12i	W 111/12i	+	+ RE	ы	POSITIVE
32504	419411,	1	SC 13-JUL-94	LM	90020 01-AUG-94	LEISHMANIA JW	TW 111/12i	+	+ RE	EJ .	POSITIVE
32505	419412,	1	SCU 13-JUL-94	I.M	90020 01-AUG-94	LEISHMANIA JW 111/12i	W 111/12i	ı	- NR	o:	NEGATIVE
32505	419412,	1	SCU 13-JUL-94	I.M	90020 05-AUG-94	LEISHMANIA JW 11/12	W 11/12	ı	- NR	o:	NEGATIVE
32506	419413,	f	SCU 13-JUL-94	LM	90020 01-AUG-94	LEISHMANIA JW 111/12i	W 111/12i		- NR	o·	NEGATIVE
32506	419413,	1	SCU 13-JUL-94	LM	90020 05-AUG-94	LEISHMANIA JW 11/12	W 11/12	ı	- NR	ø:	NEGATIVE
32507	419414,	ı	SCU 13-JUL-94	LM	90020 28-JUL-94	LEISHMANIA JW 111/12i	W 11i/12i	+	+ RE	G	POSITIVE
32508	419415,	1	SCU 13-JUL-94	T.M.	90020 01-AUG-94	LEISHMANIA JW 111/12i	W 111/12i	+	+ RE	ស	POSITIVE
32509	419416,	1	SCU 13-JUL-94	LM	90020 28-JUL-94	LEISHMANIA JW 111/12i	W 11i/12i	+	+ RE	to	POSITIVE
32510	419417,	1	SCU 13-JUL-94	ΓM	90020 28-JUL-94	LEISHMANIA JW 11i/12i	W 11i/12i	+	+ RE	m	POSITIVE

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Spec ID	Spec ID Patient Name	FPC + SSN	Spec	Received Date	Study	Panel Assay Date Virus		Primer	Tube 7	Tube # 2 Int	Comments	Final Result
32511	419418,		SCU	13-JUL-94	I WI	90020 28-JUL-94	LEISHMANIA JW 111/12i	11/121		+ RE	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	POSITIVE
Z000795 40341,	40341,		BL	04-FEB-94	I.M	90020 28-JUL-94	LEISHMANIA JW 11i/12i	li/12i	1	- NR		NEGATIVE
Z000821	Z000821 KAPPLAN, BARRY	20-206-52-6668 LN		18-FEB-94	I.M	90020 28-JUL-94	LEISHMANIA JW 111/12i	li/12i		- NR		NEGATIVE
28911	LYON, KENNY	-465-35-8434	BM	10-FEB-94	ГМ	90021 05-AUG-94	LEISHMANIA JW 11i/12i	11/12i		- NR		NEGATIVE
30805	41164,	i	BL	26-APR-94	IIM	90021 05-AUG-94	LEISHMANIA JW 111/12i	1i/12i	ı	- NR		NEGATIVE
31796	MAZUR, JOACHIM	-416-86-2154	N.	16-JUN-94	ΓM	90021 05-AUG-94	LEISHMANIA JW 111/12i	11/121	ı	- NR		NEGATIVE
31841	FRANKS, JOHNNIE	-509-82-2357	L'	22-JUN-94	ĽΜ	90021 05-AUG-94	LEISHMANIA JW 11i/12i	11/121		- NR		NEGATIVE
31854	SMITH, HERBERT J	20-264-56-5136 BM		23-JUN-94	LM	90021 05-AUG-94	LEISHMANIA JW 11i/12i	li/12i		- NR		NEGATIVE
31943	MCKEE, THEODORE	-473-72-0140	BL	28-JUN-94	LM	90021 05-AUG-94	LEISHMANIA JW 11i/12i	li/12i		- NR		NEGATIVE
31944	MCKEE, THEODORE	-473-72-0140	BM BM	28-JUN-94	LM	90021 05-AUG-94	LEISHMANIA JW 11	11i/12i		- NR		NEGATIVE
31945	FRANKS, JOHNNIE	-509-82-2357	BL	28-JUN-94	LM	90021 05-AUG-94	LEISHMANIA JW 11	11i/12i	1	- NR		NEGATIVE
31946	FRANKS, JOHNNIE	-509-82-2357	BM	28-JUN-94	LM	90021 05-AUG-94	LEISHMANIA JW 111/12i	11/12i	1	- NR		NEGATIVE
32349	ZUPEC, JEFFREY	1	BL	12-JUL-94	LM	90021 05-AUG-94	LEISHMANIA JW 111/12i	1,/12i	1	- NR		NEGATIVE
32353	PERDUE, JAMES	-256-92-2772	SK	13-JUL-94	LM	90021 05-AUG-94	LEISHMANIA JW 11i/12i	11/12i		- NR		NEGATIVE
32869	COOKE, THOMAS	-101-46-8509	rı (03-AUG-94	LM	90022 18-AUG-94	LEISHMANIA JW 11i/12i	li/12i		- NR		NEGATIVE
32993	NORTHEY, DUWAYNE F	20-395-84-5069 BL		12-AUG-94	MI	90022 18-AUG-94	LEISHMANIA JW 111/12i	11/12i		- NR		NEGATIVE
32994	MARTEN, JOSEPH	-043-48-9687	BI	11-AUG-94	LM	90022 18-AUG-94	LEISHMANIA JW 111/12i	11/12i	,	- NR		NEGATIVE
32995	MARTEN, JOSEPH	-043-48-9687	ВМ	11-AUG-94	LM	90022 18-AUG-94	LEISHMANIA JW 11i/12i	li/12i		- NR		NEGATIVE
32996	EDWARD, JAMES	-158-50-4154	BL	11-AUG-94	I.M	90022 18-AUG-94	LEISHMANIA JW 11i/12i	li/12i	1	, NR		NEGATIVE
32997	EDWARD, JAMES	-158-50-4154		11-AUG-94	LM	90022 18-AUG-94	LEISHMANIA JW 11i/12i	li/12i	ı	- RR		NEGATIVE
32998	ROVNAN, MATTHEW	-209-58-7439	BL	11-AUG-94	LM	90022 18-AUG-94	LEISHMANIA JW 111/12i	i/12i	1	- NR		NEGATIVE
32999 I	rovnan, matthew	-209-58-7439	SK	11-AUG-94	LM	90022 18-AUG-94	LEISHMANIA JW 11i/12i	.i/12i	+	+ RE		POSITIVE
33000 I	ROVNAN, MATTHEW	-209-58-7439	ASP :	11-AUG-94	LM	90022 18-AUG-94	LEISHMANIA JW 11i/12i	1/12i	ı	- NR	1.5% OF TOTAL VOLUME NEGATIVE	NEGATIVE
33101	NORTHEY, DUWAYNE F	20-395-84-5069 LI		12-AUG-94	ГМ	90022 18-AUG-94	LEISHMANIA JW 111/12i	.i/12i	1	- RA		NEGATIVE

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Spec ID Patient Name FPC + SSN Type Date Str	Spec Received FPC + SSN Type Date	Spec Received Type Date	ived	ived	Stı	Study	Panel Assay Date Virus		Primer	Tube T # 1 #	Tube # 2 Int	Comments	Final Result
ROVNAN, MATTHEW -209-58-7439 ASP 17-AUG-94 LM	-209-58-7439 ASP 17-AUG-94 LM	ASP 17-AUG-94 LM	17-AUG-94 LM	Ľ			90023 25-AUG-94	LEISHMANIA JW 11i/12i	111/121	! ! !	E E	20% OF TOTAL VOLUME	NEGATIVE
RITTER, BARBARA K -404-60-5363 BL 25-AUG-94 LM	-404-60-5363 BL 25-AUG-94	BL 25-AUG-94	25-AUG-94		LM		90024 13-SEP-94	LEISHMANIA JW 111/12i	111/121	1	- NR		NEGATIVE
RITTER, BARBARA K -404-60-5363 BM 25-AUG-94 LM	-404-60-5363 BM 25-AUG-94	BM 25-AUG-94	25-AUG-94		LM		90024 13-SEP-94	LEISHMANIA JW 111/12i	/ 11i/12i	ŧ	- NR		NEGATIVE
LALITA, DEVI - BL 25-AUG-94 LM	- BL 25-AUG-94	BL 25-AUG-94	25-AUG-94		Ę		90024 13-SEP-94	LEISHMANIA JW 111/12i	111/12i	1	- NR	ABLC-19	NEGATIVE
RAKESH, KV - BL 25-AUG-94 LM	- BL 25-AUG-94	25-AUG-94	25-AUG-94		E.		90024 13-SEP-94	LEISHMANIA JW 11i/12i	111/12i	+	+ RE	ABLC-018	POSITIVE
RITTER, BARBARA K -404-60-5363 LI 25-AUG-94 LM	-404-60-5363 LI 25-AUG-94	LI 25-AUG-94	25-AUG-94		Σ		90024 13-SEP-94	LEISHMANIA JW 111/12i	111/121	1	- NR		NEGATIVE
42381, - BL 26-AUG-94 LM	26-AUG-94	26-AUG-94	26-AUG-94		Ę		90024 13-SEP-94	LEISHMANIA JW 111/12i	111/121	1	- NR		NEGATIVE
42382, - BL 26-AUG-94 LM	26-AUG-94	26-AUG-94	26-AUG-94		ΓW		90024 13-SEP-94	LEISHMANIA JW 111/12i	111/12i	1	- NR		NEGATIVE
42383, - BL 26-AUG-94 LM	26-AUG-94	26-AUG-94	26-AUG-94		Ę		90024 13-SEP-94	LEISHMANIA JW 111/12i	111/12i	1	, NR		NEGATIVE
42384, - BL 26-AUG-94 LM	26-AUG-94	26-AUG-94	26-AUG-94		Ę		90024 13-SEP-94	LEISHMANIA JW 111/12i	111/12i	1	- NR		NEGATIVE
42385, - BL 26-AUG-94 LM	26-AUG-94	26-AUG-94	26-AUG-94		Ë		90024 13-SEP-94	LEISHMANIA JW 111/12i	111/121	1	- NR		NEGATIVE
42386, - BL 26-AUG-94 LM	26-AUG-94	26-AUG-94	26-AUG-94		Ę		90024 13-SEP-94	LEISHMANIA JW 111/12i	111/121	1	- NR		NEGATIVE
42387, - BL 26-AUG-94 IM	26-AUG-94	26-AUG-94	26-AUG-94		E		90024 13-SEP-94	LEISHMANIA JW 111/12i	111/121	1	- NR		NEGATIVE
42388, - BL 26-AUG-94 LM	26-AUG-94	26-AUG-94	26-AUG-94		E		90024 13-SEP-94	LEISHMANIA JW	111/121	1	- NR		NEGATIVE
42389, - BL 26-AUG-94 LM	26-AUG-94	26-AUG-94	26-AUG-94		Ę		90024 13-SEP-94	LEISHMANIA JW 111/12i	111/121	1	- NR		NEGATIVE
423810, - BL 26-AUG-94 LM	26-AUG-94	26-AUG-94	26-AUG-94		Ę		90024 19-SEP-94	LEISHMANIA JW	111/121	1	- NR		NEGATIVE
423811, - BL 26-AUG-94 LM	26-AUG-94	26-AUG-94	26-AUG-94		EM.		90024 13-SEP-94	LEISHMANIA JW 111/12i	111/121	ı	- NR		NEGATIVE
423812, - BL 26-AUG-94 LM	26-AUG-94	26-AUG-94	26-AUG-94		Ę		90024 13-SEP-94	LEISHMANIA JW 111/12i	111/121	1	- NR		NEGATIVE
423813, - BL 26-AUG-94 LM	26-AUG-94	26-AUG-94	26-AUG-94		E		90024 13-SEP-94	LEISHMANIA JW 111/12i	111/121	ı	- E		NEGATIVE
423814, - BL 26-AUG-94 LM	26-AUG-94	26-AUG-94	26-AUG-94		I'M		90024 13-SEP-94	LEISHMANIA JW 111/12i	111/121	ı	- NR		NEGATIVE
423815, - BL 26-AUG-94 IM	26-AUG-94	26-AUG-94	26-AUG-94		EM.		90024 19-SEP-94]	LEISHMANIA JW 111/12i	111/12i	1	ı MR		NEGATIVE
423816, - BL 26-AUG-94 LM	26-AUG-94	26-AUG-94	26-AUG-94		ΓW		90024 13-SEP-94]	LEISHMANIA JW 111/12i	111/121	1	- NR		NEGATIVE
423817, - BL 26-AUG-94 LM	26-AUG-94	26-AUG-94	26-AUG-94		EM		90024 13-SEP-94]	LEISHMANIA JW 111/12i	111/121	1	MR		NEGATIVE
423818, - BL 26-AUG-94 LM	26-AUG-94	26-AUG-94	26-AUG-94		ILM		90024 19-SEP-94 1	LEISHMANIA JW 11i/12i	111/121	,	- NR		NEGATIVE

Report Date:

			Spec	Received	Frome JW 14					Tube 1	Tube		
Δ.	Spec ID Patient Name	FPC + SSN	Type	Type Date	Study	Panel Assay Date Virus	/ Date V	irus	Primer			Comments	Final Result
₹	423819,		BL	26-AUG-94	LM	90024 13-SEP-94	1	LEISHMANIA JW 11i/12i	 W 11i/12i	1	- NR		NEGATIVE
	423820,		BL	26-AUG-94	ΜΊ	90024 13-SEP-94		LEISHMANIA JW 111/12i	W 11i/12i	í	- NR	к.	NEGATIVE
	423821,	1	BL	26-AUG-94	Ι'n	90024 13-SEP-94		LEISHMANIA JW 111/12i	W 11i/12i	ı	- NR	r:	NEGATIVE
	423822,		BĽ	26-AUG-94	ΓΜ	90024 13-SEP-94		LEISHMANIA JW 11i/12i	W 11i/12i	ı	- NR	ĸ	NEGATIVE
· ·	423823,	1	BL	26-AUG-94	LM	90024 13-SEP-94		LEISHMANIA JW 111/12i	W 11i/12i	ı	- NR	~	NEGATIVE
٧.	423824,	1	BL	26-AUG-94	I'M	90024 13-SEP-94		LEISHMANIA JW 111/12i	W 111/12i	ı	- NR	~	NEGATIVE
٧.	423825,	ı	BL	26-AUG-94	LM	90024 13-SEP-94		LEISHMANIA JW 11i/12i	W 11i/12i	ı	- NR	~	NEGATIVE
4	423826,	1	BL	26-AUG-94	ΓM	90024 13-SEP-94		LEISHMANIA JW 11i/12i	W 11i/12i	ı	, NR	~	NEGATIVE
4.	423827,	•	BL	26-AUG-94	I.M	90024 13-SEP-94		LEISHMANIA JW 111/12i	W 111/12i	1	RR	~	NEGATIVE
4.	423828,	1	BL	26-AUG-94	гw	90024 13-SEP-94		LEISHMANIA JW 111/12i	W 11i/12i	ı	, NR	~	NEGATIVE
4.	423829,	•	BŢ	26-AUG-94	I'M	90024 19~SEP-94		LEISHMANIA JW 111/12i	W 11i/12i	ı	- NR	~	NEGATIVE
4.	423830,	1	BL	26-AUG-94	IIM	90024 13-SEP-94		LEISHMANIA JW 111/12i	W 11i/12i	1	- NR	~	NEGATIVE
4.	423831,		BĽ	26-AUG-94	IIM	90024 13-SEP-94		LEISHMANIA JW 111/12i	V 11i/12i	1	RA	~	NEGATIVE
A.	423832,		BL	26-AUG-94	In	90024 13-SEP-94		LEISHMANIA JW 111/12i	W 11i/12i	1	- NR	~	NEGATIVE
4	423833,	ſ	BL	26-AUG-94	I'M	90024 13-SEP-94		LEISHMANIA JW 111/12i	v 11i/12i	ı	- MR	~	NEGATIVE
4	423834,	•	BL	26-AUG-94	Ϊ́Μ	90024 13-SEP-94		LEISHMANIA JW 111/12i	V 11i/12i	1	- AR	~	NEGATIVE
4	423835,		BL	26-AUG-94	ШМ	90024 13-SEP-94		LEISHMANIA JW 111/12i	V 11i/12i	1	- NR	~	NEGATIVE
4	423836,		BL	26-AUG-94	ΓM	90024 13~SEP-94		LEISHMANIA JW 111/12i	V 11i/12i		- NR	~	NEGATIVE
4	423837,	1	BI	26-AUG-94	LM	90024 13-SEP-94		LEISHMANIA JW 111/12i	¶ 11i/12i	,	- NR	~	NEGATIVE
4	423838,	•	BL	26-AUG-94	LM	90024 13-SEP-94		LEISHMANIA JW 11i/12i	V 11i/12i	,	- NR		NEGATIVE
4	423839,	ı	BL	26-AUG-94	LIM	90024 13-SEP-94		LEISHMANIA JW 111/12i	V 11i/12i	ı	- NR	-	NEGATIVE
4	423840,	ı	BL	26-AUG-94	IM	90024 13-SEP-94		LEISHMANIA JW 111/12i	V 11i/12i	1	- NR		NEGATIVE
4	423841,	1	BL	26-AUG-94	LM	90024 13-SEP-94		LEISHMANIA JW 111/12i	V 11i/12i	1	- NR		NEGATIVE
4	423842,	ı	BL	26-AUG-94	ГМ	90024 13-SEP-94		LEISHMANIA JW 111/12i	V 11i/12i		- NR		NEGATIVE

PCR Assay Results: LM

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Spec 1D) Patient Name	FPC + SSN	Spec Type	Received Date	Study	Panel Assay Date Virus		Primer	Tube # 1	Tube # 2 Int	Comments	Final Result
33340	423843,		BL	26-AUG-94	I.M.	90024 13-SEP-94	LEISHMANIA JW 11i/12i	V 11i/12i	 	NR		NEGATIVE
33341	423844,	- ,	BL	26-AUG-94	LM	90024 13-SEP-94	LEISHMANIA JW 11i/12i	4 11i/12i	•	- NR	~	NEGATIVE
33342	423845,	t	BL	26-AUG-94	LM	90024 13-SEP-94	LEISHMANIA JW 111/12i	V 11i/12i	1	- NR	~	NEGATIVE
33343	423846,	1	BL	26-AUG-94	InM	90024 13-SEP-94	LEISHMANIA JW 11i/12i	V 11i/12i	1	- NR	~	NEGATIVE
33344	423847,	ı	BL	26-AUG-94	ГМ	90024 13-SEP-94	LEISHMANIA JW 11i/12i	¶ 11i/12i	1	- NR	~	NEGATIVE
33409	BACHMAN, JOHN	20-205-42-4875 CO	8	31-AUG-94	LM	90024 13-SEP-94	LEISHMANIA JW 111/12i	4 11i/12i	ı	- NR	~	NEGATIVE
33411	HORNER, BRENT A	-440-70-8754	BL	31-AUG-94	ГМ	90024 13-SEP-94	LEISHMANIA JW 11i/12i	4 11i/12i	1	, NR	~	NEGATIVE
33412	HORNER, BRENT A	-440-70-8754	ĽI	31-AUG-94	ГМ	90024 13-SEP-94	LEISHMANIA JW 11i/12i	/ 11i/12i	1	- NR	~	NEGATIVE
33616	425202,	t	BL	09-SEP-94	LM	90025 06-OCT-94	LEISHMANIA JW 11i/12i	7 11i/12i	+	+ RE	M	POSITIVE
33617	425203,	1	BL	09-SEP-94	ΓM	90025 06-OCT-94	LEISHMANIA JW 111/12i	111/12i	1	, NR	~	NEGATIVE
33618	425204,	1	BL	09-SEP-94	ГМ	90025 06-OCT-94	LEISHMANIA JW 111/12i	111/121	+	+ RE	M	POSITIVE
33619	425205,	1	BL	09-SEP-94	ΓM	90025 06-OCT-94	LEISHMANIA JW 111/12i	111/121	+	+ RE		POSITIVE
33620	425206,	ı	BL	09-SEP-94	μı	90025 06-OCT-94	LEISHMANIA JW 11i/12i	111/12i	+	+ RE	M	POSITIVE
33621	JOHNSON, JANET L	-417-80-7607	BI	09-SEP-94	I.M	90025 06-OCT-94	LEISHMANIA JW 11i/12i	111i/12i	1	- NR	~	NEGATIVE
33622	JOHNSON, JANET L	-417-80-7607	BM	09-SEP-94	ΨΊ	90025 06-OCT-94	LEISHMANIA JW 111/12i	111/121	1	- NR	~	NEGATIVE
33649	42551,		BL	12-SEP-94	I.M	90025 06-OCT-94	LEISHMANIA JW 111/12i	111/12i	+	+ RE		POSITIVE
33650	42552,	1	BL	12-SEP-94	ГМ	90025 06-OCT-94	LEISHMANIA JW 111/12i	111/12i	+	+ RE		POSITIVE
33673	PRIEM, RICHARD G	-452-88-8338	BL	13-SEP-94	Iлм	90025 06-OCT-94	LEISHMANIA JW 111/12i	111/121	1	- NR	~	NEGATIVE
33728	MARABLE, GARY L	-254-51-6352	BL	16-SEP-94	ГМ	90025 06-OCT-94	LEISHMANIA JW 11i/12i	111/121	ı	- NR		NEGATIVE
33729	MARABLE, GARY L	-254-51-6352	BL	16-SEP-94	ГМ	90025 06-OCT-94	LEISHMANIA JW 111/12i	111/121	+	+ RE		POSITIVE
33733	HUMPHREY, MARK	20-339-68-9001	BL	19-SEP-94	RV21 IIB	90025 06-OCT-94	LEISHMANIA JW 111/12i	111/121	1	- NR		NEGATIVE
33744	426201,	1	BL	19-SEP-94	ГМ	90025 06-OCT-94	LEISHMANIA JW 111/12i	111/121	ı	- MR		NEGATIVE
33745	426202,	1	BI	19-SEP-94	ГМ	90025 06-OCT-94	LEISHMANIA JW 111/12i	111/121	i	- NA		NEGATIVE
33746	426203,	1	BL	19-SEP-94	ΕĪĀ	90025 06-OCT-94	LEISHMANIA JW 111/12i	111/121		- NR		NEGATIVE

PCR Assay Results: LM

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					Probe JW 14							
Spec II	Spec ID Patient Name	FPC + SSN	Spec	Spec Received Type Date	Study	Panel Assay Date Virus	Virus	Primer	Tube 7	Tube # 2 Ir	Int Comments	Final Result
33747	426204,	!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!	BL B	19-SEP-94	LM	90025 06-OCT-94	 LEISHMANIA JW 11i/12i	W 11i/12i			NR	NEGATIVE
33748	426205,	. 1	BL	19-SEP-94	ΓW	90025 06-OCT-94	LEISHMANIA JW 111/12i	W 11i/12i	1		NR	NEGATIVE
33749	426206,	ı	BĽ	19-SEP-94	LM	90025 06-OCT-94	LEISHMANIA JW 11i/12i	W 11i/12i	1		NR	NEGATIVE
33750	426207,	ı	BL	19-SEP-94	ГМ	90025 06-OCT-94	LEISHMANIA JW 11i/12i	W 11i/12i	1	-	NR	NEGATIVE
33752	426209,	ı	BL	19-SEP-94	I.M	90025 06-OCT-94	LEISHMANIA JW 11i/12i	W 11i/12i	1		NR	NEGATIVE
33754	426211,	ì	BL	16-SEP-94	LM	90025 06-OCT-94	LEISHMANIA JW 111/12i	W 11i/12i	1	1	NR	NEGATIVE
33755	426212,	1	BL	16-SEP-94	ΓM	90025 06-OCT-94	LEISHMANIA JW 11i/12i	W 11i/12i	ı		NR	NEGATIVE
33757	426214,	1	BL	16-SEP-94	LM	90025 06-OCT-94	LEISHMANIA JW 111/12i	W 111/12i	1	1	NR	NEGATIVE
33758	426215,	1	BL	16-SEP-94	LM	90025 06-OCT-94	LEISHMANIA JW 11i/12i	W 11i/12i	ı	۱	NR	NEGATIVE
33759	426216,	1	BL	16-SEP-94	ΓM	90025 06-OCT-94	LEISHMANIA JW 111/12i	W 111/12i	ı	1	NR	NEGATIVE
33760	426217,	ı	BL	16-SEP-94	ΓM	90025 06-OCT-94	LEISHMANIA JW 11i/12i	W 111/12i	1	1	NR	NEGATIVE
33761	426218,	ı	BL	16-SEP-94	ΓM	90025 06-OCT-94	LEISHMANIA JW 111/12i	W 111/12i	1	1	NR	NEGATIVE
33762	426219,	ı	BL	16-SEP-94	ĽΨ	90025 06-OCT-94	LEISHMANIA JW 11i/12i	W 11i/12i	1	,	NR	NEGATIVE
33763	426220,	1	BL	16-SEP-94	LIM LIM	90025 06-OCT-94	LEISHMANIA JW 111/12i	W 11i/12i	ı	:	NR	NEGATIVE
33764	426221,	1	BL	16-SEP-94	ГМ	90025 06-OCT-94	LEISHMANIA JW 111/12i	W 111/12i	ı	ı	NR	NEGATIVE
33765	426222,	1	BL	16-SEP-94	LM	90025 06-OCT-94	LEISHMANIA JW 111/12i	W 111/12i	i	1	NR	NEGATIVE
33766	426223,	1	BL	16-SEP-94	LIM	90025 06-OCT-94	LEISHMANIA JW 11i/12i	W 11i/12i	1	1	NR	NEGATIVE
33767	426224,	1	BL	16-SEP-94	LIM	90025 06-OCT-94	LEISHMANIA JW 111/12i	W 111/12i	ı	1	NR	NEGATIVE
33768	426225,	t	BL	16-SEP-94	I.M	90025 06-OCT-94	LEISHMANIA JW 11i/12i	W 11i/12i	1	1	NR	NEGATIVE
33769	426226,	ı	BL	16-SEP-94	WI	90025 06-OCT-94	LEISHMANIA JW 111/12i	W 11i/12i	ı	4	NR	NEGATIVE
33770	426227,	1	BL	16-SEP-94	I.M	90025 06-OCT-94	LEISHMANIA JW 111/12i	W 111/12i	ı	1	NR	NEGATIVE
33771	426228,	1	BL	16-SEP-94	LM	90025 06-OCT-94	LEISHMANIA JW 111/12i	W 11i/12i	ı	4	NR	NEGATIVE
33772	426229,	1	BL	16-SEP-94	ΜΊ	90025 06-OCT-94	LEISHMANIA JW 111/12i	W 11i/12i	1	i I	NR	NEGATIVE
33773	426230,	ı	BL	16-SEP-94	LM	90025 06-OCT-94	LEISHMANIA JW 111/12i	W 111/12i	٠	1	NR	NEGATIVE

					Frome OW 14								
Spec II	Spec ID Patient Name	FPC + SSN	Spec Rece: Type Date	Spec Received Type Date	Study	Panel	Panel Assay Date Virus	Virus	Primer	Tube 7	Tube # 2 Int	Comments	Final Result
33774	426231,		BL	16-SEP-94	EM :	90025	06-0CT-94	LEISHMANIA JW 111/12i	w W 11i/12i	 	EX.	e 2	NEGATIVE
33775	426232,	- 1	BL	16-SEP-94	ГМ	90025	90025 06-OCT-94	LEISHMANIA JW 11i/12i	W 11i/12i	Ť	- NR	œ	NEGATIVE
33776	426233,	1	BL	16-SEP-94	ГМ	90025	90025 06-OCT-94	LEISHMANIA JW 111/12i	W 11i/12i	1	- NR	œ	NEGATIVE
33777	426234,	ſ	BL	16-SEP-94	ГМ	90025	90025 06-OCT-94	LEISHMANIA JW 111/12i	W 111/12i	ı	, RR	œ	NEGATIVE
33778	426235,	ı	BL	16-SEP-94	ГМ	90025	90025 06-OCT-94	LEISHMANIA JW 111/12i	W 11i/12i	ı	- MR	e.	NEGATIVE
33779	426236,	1	BL	16-SEP-94	LM	90025	90025 06-OCT-94	LEISHMANIA JW 111/12i	W 11i/12i	, ,	- NR	ø:	NEGATIVE
Spec ID) Patient Name	FPC + SSN	Type Date	neceived Date	Study	Panel	Assay Date Virus		Primer	Tube 7	Tube # 2 Int	t Comments	
20027	BACHMAN, JOHN	20-205-42-4875	BĽ	13-JAN-93	L. M.	60006	03-FEB-92	LEISHMANIA	JW 11/12		NR		
20028	BACHMAN, JOHN	20-205-42-4875	BM	13-JAN-93	ГМ	60006	03-FEB-93	LEISHMANIA	JW 11/12	ı	- NR	o:	
20278	CLARK, ALVIN	20-249-13-9659	BL	26-JAN-93	LM	60006	03-FEB-93	LEISHMANIA	JW 11/12	ı	- NR	o:	
20279	CLARK, ALVIN	20-249-13-9659	ВМ	26-JAN-93	ГМ	60006	03-FEB-93	LEISHMANIA	JW 11/12	1	- NR	e:	
20280	RICO, JUAN N	20-447-40-4827	BL ;	26-JAN-93	ГМ	60006	03-FEB-93	LEISHMANIA	JW 11/12	ı	- NR	ø:	
20281	RICO, JUAN N	20-447-40-4827	ВМ	26-JAN-93	ГМ	60006	03-FEB-93	LEISHMANIA	JW 11/12	ı	- NA	o·.	
20344	HAMMACK, WENDELL	20-427-49-8157	BI ?	27-JAN-93	I'M	60006	03-FEB-93	LEISHMANIA	JW 11/12	1	+	CNI	
20345	HAMMACK, WENDELL	20-427-49-8157	BM	27-JAN-93	ГМ	60006	03-FEB-93	LEISHMANIA	JW 11/12	+	-	QNI	
20366	DUNSON, DAVID	20-250-53-3477	BL ?	28-JAN-93	ГМ	60006	03-FEB-93	LEISHMANIA	JW 11/12	•	- NR	~	
20367	DUNSON, DAVID	20-250-53-3477	BM	28-JAN-93	ΓM	60006	03-FEB-93	LEISHMANIA	JW 11/12	. 1	- NR	٠	
20401	GOODMAN, JONH J	20-187-50-9316	BL (01-FEB-93	ГМ	60006	19-FEB-93	LEISHMANIA	JW 11/12	1	- MR	~	
20402	GOODMAN, JONH J	20-187-50-9316	ВМ	01-FEB-93	Ι'n	60006	19-FEB-93	LEISHMANIA	JW 11/12	1	- NR	~	
21243	HAMMACK, WENDELL	20-427-49-8157	BL (03-MAR-93	Ι'n	60006	09-MAR-93	LEISHMANIA	JW 11/12	,	- NR	~	
21244	HAMMACK, WENDELL	20-427-49-8157	ВМ	03-MAR-93	ГМ	60006	09-MAR-93	LEISHMANIA	JW 11/12	1	, SR	~	
21459	REIGLE, KERRY J	20-180-48-6847	BL 1	10-MAR-93	ГМ	60006	15-MAR-93	LEISHMANIA	JW 11/12	1	, NR	~	
21460	REIGLE, KERRY J	20-180-48-6847	BM 1	10-MAR-93	ГМ	60006	15-MAR-93	LEISHMANIA	JW 11/12	,	- NR	~	

PCR Assay Results: LM Probe JW 14 Received

Spec II	Spec ID Patient Name	S PPC + SSN T	Spec R Type D	Received Date	Study	Panel	Panel Assay Date Virus	Virus	Primer	Tube # 1	Tube # 2	Int C	Comments
21551	SCHONEBOOM, BRAD L	20-367-76-1421	BL 1	15-MAR-93	I'M	60006	25-MAR-93	LEISHMANIA	JW 11/12	.	1 1 1	MR .	
21551	SCHONEBOOM, BRAD L	20-367-76-1421	BL 1	15-MAR-93	Γ.M	60006	05-APR-93	LEISHMANIA	JW 11/12		1	MR	
21552	SCHONEBOOM, BRAD L	20-367-76-1421	BM 1	15-MAR-93	Ш	60006	25-MAR-93	LEISHMANIA	JW 11/12		t	MR	
21552	SCHONEBOOM, BRAD L	20-367-76-1421	BM 1	15-MAR-93	Т.М	60006	05-APR-93	LEISHMANIA	JW 11/12	+	+	RE	
22756	WILSON, PHILLIP R	20-246-72-7869	BL 0	05-MAY-93	RV2	60006	13-MAY-93	LEISHMANIA	JW 11/12	+	1	ONI	
22955	DARBY, GREGORY S	20-505-06-2923	BL 1	12-MAY-93	LM	60006	29-JUL-93	LEISHMANIA	JW 11/12	1	-/+	ONI	+REP
23056	WADDELL, DIRK	20-343-56-3223	BM 1	18-MAY-93	ΓM	60006	20-MAY-93	LEISHMANIA	JW 11/12	ι	1	NR	
23250	CHIPLEY, JOSHUA W	20-564-33-6887	BL 2	21-MAY-93	ΓΜ	60006	01-JUL-93	LEISHMANIA	JW 11/12	ı	1	NR	
23250	CHIPLEY, JOSHUA W	20-564-33-6887	BL 2	21-MAY-93	I.M	60006	25-MAY-93	LEISHMANIA	JW 11/12	+	+	RE	
23251	JOHNSON, ROBERT	ı	BL 2	21-MAY-93	I.M	60006	01-JUL-93	LEISHMANIA	JW 11/12		1	NR	
23251	JOHNSON, ROBERT	ı	BL 2	21-MAY-93	L.M	60006	25-MAY-93	LEISHMANIA	JW 11/12	ı	ı	MR	
23324	MYKUT, STEVEN	1	BL 2	26-MAY-93	LM	60006	27-MAY-93	LEISHMANIA	JW 11/12	1	1	MR	
23328	J4,	1	BL 2	26-MAY-93	LM	60006	27-MAY-93	LEISHMANIA	JW 11/12	+	+	RE	
23328	J4,	1	BL 2	26-MAY-93	ГМ	60006	30-MAY-93	LEISHMANIA	JW 11/12	*		IND	
23328	J4,		BL 2	26-MAY-93	ГМ	60006	01-JUL-93	LEISHMANIA	JW 11/12	1	1	NR	
23328	J4,		BL 2	26-MAY-93	I.M	60006	29-JUL-93	LEISHMANIA	JW 11/12	ı	1	NR	+REP
23328	J4,		BL 2	26-MAY-93	MI	60006	27-MAY-93	LEISHMANIA	JW 11/12	-/+	,	CNI	
23328	J4,		BL 2	26-MAY-93	ΨΊ	60006	30-MAY-93	LEISHMANIA	JW 11/12	*		QNI	
23344	GHEBREMESCHEL, TADDE	20-049-34-1541	BL 2	27-MAY-93	I'M	60006	01-JUL-93	LEISHMANIA	JW 11/12	1	1	NR.	
23344	GHEBREMESCHEL, TADDE	20-049-34-1541	BL 2	27-MAY-93	MI	60006	09-JUL-93	LEISHMANIA	JW 11/12	•	,	NR	
23384	LILLY, SCOTT D	20-496-78-0235	SM	01-JUN-93	RV43	60006	02-JUL-93	LEISHMANIA	JW 11/12		1	NR	
23384	LILLY, SCOTT D	20-496-78-0235	SM	01-JUN-93	RV43	60006	02-JUL-93	LEISHMANIA	JW 11/12		1	Ä	
23385	CRADDOCK, ANNETTE	30-455-02-0568	BL 0	01-JUN-93	RV21 IIB	60006	02-JUL-93	LEISHMANIA	JW 11/12	1	į	MR	

Spec ID	Spec ID Patient Name	FPC + SSN	Spec Type	Received Date	Study	Panel	Panel Assay Date Virus	Virus	Primer	Tube Tr # 1 #	Tube # 2 Int	t Comments
23573	LAROCHE,		BL	07-JUN-93	LM	60006	08-JUN-93	LEISHMANIA	JW 11/12	; } }		NR
23574	HENDRICK, PETER		BL	07-JUN-93	ГM	60006	08-JUN-93	LEISHMANIA	JW 11/12	1	1	NR
23575	PATIENT #1 07-JUN-93	1	BL	07-JUN-93	ГW	60006	08-JUN-93	LEISHMANIA	JW 11/12	1	,	NR
23576	PATIENT #2 07-JUN-93	ŧ	ВМ	07-JUN-93	ΙΜ	60006	08-JUN-93	LEISHMANIA	JW 11/12	,	1	NR
23677	CHIPLEY, JOSHUA W	20-564-33-6887	BL	11-JUN-93	ГМ	60006	15-JUN-93	LEISHMANIA	JW 11/12	,		NR
23678	CHIPLEY, JOSHUA W	20-564-33-6887	BL	11-JUN-93	ΓM	60006	15-JUN-93	LEISHMANIA	JW 11/12	1	1	NR
23757	SMITH, TRACY L	-095-50-9074	BM	15-JUN-93	WT	60006	24-JUN-93	LEISHMANIA	JW 11/12		-	NR
23757	SMITH, TRACY L	-095-50-9074	ВМ	15-JUN-93	Ι'n	60006	02-JUL-93	LEISHMANIA	JW 11/12	1	1	NR
23758	SMITH, TRACY L	-095-50-9074	BI	15-JUN-93	гм	60006	24-JUN-93	LEISHMANIA	JW 11/12	t	1	NR
23758	SMITH, TRACY L	-095-50-9074	BL	15-JUN-93	ГМ	60006	24-JUN-93	LEISHMANIA	JW 11/12	ı	1	NR
23758	SMITH, TRACY L	-095-50-9074	BL	15-JUN-93	ΓW	60006	02-JUL-93	LEISHMANIA	JW 11/12	ı	1	NR
23827	INGALLS, J	-056-48-8347	BL	17-JUN-93	LM	60006	24-JUN-93	LEISHMANIA	JW 11/12	1	1	NR
23827	INGALLS, J	-056-48-8347	BL	17-JUN-93	ΓM	60006	02-JUL-93	LEISHMANIA	JW 11/12	ı	1	NR DIL_1:2
23828	INGALLS, J	-056-48-8347	BM	17-JUN-93	L.M	60006	24-JUN-93	LEISHMANIA	JW 11/12	1	1	NR
23828	INGALLS, J	-056-48-8347	В	17-JUN-93	LM	60006	02-JUL-93	LEISHMANIA	JW 11/12	1	1	NR
23877	SIMON, MICHAEL	20-304-82-0936	BL	21-JUN-93	LM	60006	24-JUN-93	LEISHMANIA	JW 11/12		2 4	NR
23877	SIMON, MICHAEL	20-304-82-0936	BL	21-JUN-93	ΓΜ	60006	02-JUL-93	LEISHMANIA	JW 11/12	,	2 4	NR
23878	SIMON, MICHAEL	20-304-82-0936	BM	21-JUN-93	ГМ	60006	24-JUN-93	LEISHMANIA	JW 11/12	1	1	NR
23878	SIMON, MICHAEL	20-304-82-0936	BM	21-JUN-93	ריש	60006	02-JUL-93	LEISHMANIA	JW 11/12	1		NR
23879	YOUNG, RYAN	20-027-68-3250	BL	21-JUN-93	M,I	60006	24-JUN-93	LEISHMANIA	JW 11/12	,	2	NR
23879	YOUNG, RYAN	20-027-68-3250	BL	21-JUN-93	IгМ	60006	02-JUL-93	LEISHMANIA	JW 11/12	ı	Z .	NR
23879	YOUNG, RYAN	20-027-68-3250	BL	21-JUN-93	I'M	60006	24-JUN-93	LEISHMANIA	JW 11/12	ı	z	NR
23879	YOUNG, RYAN	20-027-68-3250	BI	21-JUN-93	LM	60006	02-JUL-93	LEISHMANIA	JW 11/12	ı	- NR	R DIL_1:10

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Spec II	Spec ID Patient Name	FPC + SSN	Spec Type	Received Date	Study	Panel	Assay Date Virus	Virus	Primer	Tube T	Tube # 2 Int	Comments	
23879	YOUNG, RYAN	20-027-68-3250	BL	21-JUN-93	LIM I	60006	24-JUN-93	LEISHMANIA	JW 11/12	† ! ! !	NR -	~	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
23879	YOUNG, RYAN	20-027-68-3250	BL	21-JUN-93	ГМ	60006	02-JUL-93	LEISHMANIA	JW 11/12	1	- NR	DIL_1:2	
23880	JOHNSON, DAVID L	20-232-31-6597	BI	21-JUN-93	ГМ	60006	24-JUN-93	LEISHMANIA	JW 11/12	1	- NR	~	
23880	JOHNSON, DAVID L	20-232-31-6597	BL	21-JUN-93	LM	60006	02-JUL-93	LEISHMANIA	JW 11/12	1	- NR	~	
23881	LABONTE, KEVIN P	20-003-64-2509	BL	21-JUN-93	ΓM	60006	24-JUN-93	LEISHMANIA	JW 11/12	ı	- NR	~	
23881	LABONTE, KEVIN P	20-003-64-2509	BL	21-JUN-93	ГМ	60006	02-JUL-93	LEISHMANIA	JW 11/12	ı	- NR	NEG. CONT	
23882	ZIMMERLEE, MICHAEL K	20-465-45-8835	BL	21-JUN-93	ГМ	60006	24-JUN-93	LEISHMANIA	JW 11/12	ı	- NR		
23882	ZIMMERLEE, MICHAEL K	20-465-45-8835	BL	21-JUN-93	ГМ	60006	02-JUL-93	LEISHMANIA	JW 11/12	1	- NR		
23883	FERGUSON, MARCUS W	20-220-84-2859	BL	21-JUN-93	ГМ	60006	24-JUN-93	LEISHMANIA	JW 11/12	ı	, NR		
23883	FERGUSON, MARCUS W	20-220-84-2859	BL	21-JUN-93	ГМ	60006	02-JUL-93	LEISHMANIA	JW 11/12	, 1	. MR		
23884	ROWAN, THOMAS	20-301-68-8561	BL	21-JUN-93	ПМ	60006	24-JUN-93	LEISHMANIA	JW 11/12	t	- NR		
23884	ROWAN, THOMAS	20-301-68-8561	BL	21-JUN-93	Ι'n	60006	24-JUN-93	LEISHMANIA	JW 11/12	ı	NR	_	
23885	JOHNSON, CRAIG T	20-449-91-1471	BL	21-JUN-93	LM	60006	24-JUN-93	LEISHMANIA	JW 11/12	1	: RR		
23886	STONER, JOHN P	20-335-68-3772	BL	21-JUN-93	IJM	60006	24-JUN-93	LEISHMANIA	JW 11/12	ı	- NR		
23886	STONER, JOHN P	20-335-68-3772	BL	21-JUN-93	IIМ	60006	02-JUL-93	LEISHMANIA	JW 11/12	1	- NR		
23887	ERICKSON, PATRICK G	20-553-95-8555	BL	21-JUN-93	I.M	60006	24-JUN-93	LEISHMANIA	JW 11/12	ı	- NR	_,	
23887	ERICKSON, PATRICK G	20-553-95-8555	BL	21-JUN-93	ГМ	60006	02-JUL-93	LEISHMANIA	JW 11/12	ı	- NR		
23888	SMITHERS, STEVE	-403-08-2991	BL	21-JUN-93	ĽM	60006	24-JUN-93	LEISHMANIA	JW 11/12	1	- NR		
23888	SMITHERS, STEVE	-403-08-2991	BL	21-JUN-93	ГМ	60006	02-JUL-93	LEISHMANIA	JW 11/12	1	- NR		
23889	CROSBY, PAUL N	20-082-58-3233	BL	21-JUN-93	IM	60006	24-JUN-93	LEISHMANIA	JW 11/12		- NR		
23889	CROSBY, PAUL N	20-082-58-3233	BI	21-JUN-93	LIM	60006	02-JUL-93	LEISHMANIA	JW 11/12	1	- NR		
23890	WILT, JIM	20-265-55-8545	BL	21-JUN-93	ΓM	60006	24-JUN-93	LEISHMANIA	JW 11/12	1	- NR		
23890	WILT, JIM	20-265-55-8545	BL	21-JUN-93	ГМ	60006	02-JUL-93	LEISHMANIA	JW 11/12	1	- NA		

Spec Received Panel Assay Date Virus Type Date Study Panel Assay Date Virus
25-JUN-93 LM 90009
BL 25-JUN-93 LM 90009 07-JUL-93
BL 28-JUN-93 LM 90009 07-JUL-93
BM 29-JUN-93 LM 90009 07-JUL-93
BL 29-JUN-93 LM 90009 07-JUL-93
BM 29-JUN-93 LM 90009 07-JUL-93
BL 02-JUL-93 LM 90009 09-JUL-93
BL 06-JUL-93 LM 90009 09-JUL-93
BM 06-JUL-93 LM 90009 09-JUL-93
BL 14-JUL-93 LM 90009 29-JUL-93
BL 14-JUL-93 LM 90009 29-JUL-93
BL 09-DEC-92 LM 90009 16-DEC-93
BL 09-DEC-92 LM 90009 10-DEC-92
BL 09-DEC-92 LM 90009 16-DEC-93

,		Spec		F1					Tube 7	Tube	
1	FPC + SSN	Type	Date	Study	Panel	Assay Date Virus	Virus	Primer			Int Comments
	1	BL	09-DEC-92	WI	60006	10-DEC-92	LEISHMANIA	JW 11/12		: ~	NR
		BL	09-DEC-92	IIM	60006	16-DEC-93	LEISHMANIA	JW 11/12	ı	-	NR
	ı	BL	09-DEC-92	ΓM	60006	10-DEC-92	LEISHMANIA	JW 11/12	ı	-	NR
	ı	BL	09-DEC-92	IIM	60006	16-DEC-93	LEISHMANIA	JW 11/12	+	+	RE
	ı	BL	09-DEC-92	IIM	60006	10-DEC-92	LEISHMANIA	JW 11/12	+	+	RE
	ı	BL	09-DEC-92	I'M	60006	16-DEC-93	LEISHMANIA	JW 11/12	+	+	RE
		BL	09-DEC-92	IIM	60006	10-DEC-92	LEISHMANIA	JW 11/12	+	+	RE
	1	BL	09-DEC-92	IIM	60006	16-DEC-93	LEISHMANIA	JW 11/12	+	+	RE
	ı	BL	09-DEC-92	IIM	60006	10-DEC-92	LEISHMANIA	JW 11/12	+	+	RE
	1	BL	09-DEC-92	Ϊ́Μ	60006	16-DEC-93	LEISHMANIA	JW 11/12	+	+	RE
	1	BL	09-DEC-92	IIM	60006	10-DEC-92	LEISHMANIA	JW 11/12	+	+	RE
	1	BL	09-DEC-92	ΙΨ	60006	16-DEC-93	LEISHMANIA	JW 11/12	1	1	NR
	1	BL	09-DEC-92	LM	60006	10-DEC-92	LEISHMANIA	JW 11/12	ı		NR
	1	BL	09-DEC-92	ΓW	60006	16-DEC-93	LEISHMANIA	JW 11/12	ı	-	MR
	1	BL	09-DEC-92	LM	60006	10-DEC-92	LEISHMANIA	JW 11/12	ı		NR
		BL	09-DEC-92	IIM	60006	16-DEC-93	LEISHMANIA	JW 11/12	+	+	RE
		BL	09-DEC-92	ΕM	60006	10-DEC-92	LEISHMANIA	JW 11/12	+	+	RE
	,	BL	09-DEC-92	ГM	60006	16-DEC-93	LEISHMANIA	JW 11/12	1	+	IND
	•	BL	09-DEC-92	WI	60006	10-DEC-92	LEISHMANIA	JW 11/12	+	+	RE
	1	BL	09-DEC-92	ΓW	60006	16-DEC-93	LEISHMANIA	JW 11/12	+	+	RE
	ı	BL	09-DEC-92	LM	60006	10-DEC-92	LEISHMANIA	JW 11/12	+	₽ ;	RE
	1	BL	16-DEC-92	LM	60006	21-DEC-93	LEISHMANIA	JW 11/12	+	+	RE
	ı	BL	16-DEC-92	ΓM	60006	21-DEC-93	LEISHMANIA	JW 11/12	+	+ RE	ŭ

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Spec ID Patient Name	FPC + SSN	Spec Type	Received Date	Study	Panel	Assay Date Virus	Virus	Primer	Tube Tr # 1 #	Tube # 2 Int	Comments	
Z000119 ZA125-C,		BL	16-DEC-92	I.M.	60006	21-DEC-93	LEISHMANIA	JW 11/12	i ! ! !	E E		
Z000120 2A125-D,		BL	16-DEC-92	LM	60006	21-DEC-93	LEISHMANIA	JW 11/12	+	+ RE		
Z000121 ANTI GP160/2,	1	CE	09-DEC-92	FLOW	60006	21-DEC-93	LEISHMANIA	JW 11/12	+	+ RE		
Z000122 ANTI GP160/2,	1	CE	09-DEC-92	FLOW	60006	21-DEC-93	LEISHMANIA	JW 11/12	ı	- NR	·	
Z000161 A,	ı	BL	30-DEC-92	ГМ	60006	06-JAN-93	LEISHMANIA	JW 11/12		- NR		
Z000162 C,	ı	BL	30-DEC-92	ГМ	60006	06-JAN-93	LEISHMANIA	JW 11/12	+	+ RE		
Z000162 C,	1	BL	30-DEC-92	ILM	60006	29-JUL-93	LEISHMANIA	JW 11/12	+	+ RE	+REP	
Z000163 E,	ı	BL	30-DEC-92	LM	60006	06-JAN-93	LEISHMANIA	JW 11/12	+	+ RE		
Z000163 E,	1	BL	30-DEC-92	ГМ	60006	29-JUL-93	LEISHMANIA	JW 11/12	+	+ RE	+REP	
Z000164 F,	1	BL	30-DEC-92	ΓM	60006	06-JAN-93	LEISHMANIA	JW 11/12	ı	- NA		
Z000164 F,	•	BL	30-DEC-92	LM	60006	29-JUL-93	LEISHMANIA	JW 11/12	+	+ RE	+REP	
Z000165 H,	ŧ	BL	30-DEC-92	LM	60006	06-JAN-93	LEISHMANIA	JW 11/12	+	+ RE		
Z000165 H,	ı	BL	30-DEC-92	ΓΜ	60006	29-JUL-93	LEISHMANIA	JW 11/12	+	+ RE	+REP	
Z000166 J,	ſ	BL	30-DEC-92	LM	60006	06-JAN-93	LEISHMANIA	JW 11/12	+	+ RE		
Z000166 J,	ı	BL	30-DEC-92	IM	60006	29-JUL-93	LEISHMANIA	JW 11/12	+	+ RE	+REP	
Z000167 MARY,	t	BL	11-JAN-93	LM	60006	11-JAN-93	LEISHMANIA	JW 11/12	+	+ RE		
Z000167 MARY,	ī	BL	11-JAN-93	I.M	60006	29-JUL-93	LEISHMANIA	JW 11/12	+	+ RE	+REP	
Z000168 BABLU HEUL,	1	BĽ	11-JAN-93	IIM	60006	11-JAN-93	LEISHMANIA	JW 11/12	+	+ RE		
Z000168 BABLU HEUL,	1	BT	11-JAN-93	LM	60006	29~JUL-93	LEISHMANIA	JW 11/12	+	+ RE	+REP	
Z000169 LAUZSHMI,	1	BĽ	11-JAN-93	I.M	60006	11-JAN-93	LEISHMANIA	JW 11/12	+	+ RE		
Z000169 LAUZSHMI,		BL	11-JAN-93	LM	60006	29-JUL-93	LEISHMANIA	JW 11/12	+	+ RE	+REP	
Z000170 KOMESHCOAR,	1	BL	11-JAN-93	I.M	60006	11-JAN-93	LEISHMANIA	JW 11/12	+	+ RE		
Z000170 KOMESHCOAR,	1	BL	11-JAN-93	ГМ	60006	29-JUL-93	LEISHMANIA	JW 11/12	+	ONI -) +REP	

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Spec ID Patient Name	FPC + SSN	Spec	*	Study	Panel	Panel Assay Date Virus	Virus	Primer	Tube I	Tube # 2 Int		Comments
Z000171 BIMALDEY,	; 	BL	11-JAN-93	I.M.	60006	11-JAN-93	LEISHMANIA	JW 11/12	+	+ RE	; ; m	
Z000171 BIMALDEY,	- 1	BL	11-JAN-93	LIM	60006	29-JUL-93	LEISHMANIA	JW 11/12	+	+ RE		+REP
Z000172 JAINAI,	ı	BL	11-JAN-93	IM	60006	11-JAN-93	LEISHMANIA	JW 11/12	+	+ RE	m	
Z000172 JAINAI,	1	BL	11-JAN-93	ΓM	60006	29-JUL-93	LEISHMANIA	JW 11/12	+	Ħ	CMI	+REP
Z000173 ALOR-RAYAR,	ı	BL	11-JAN-93	ГW	60006	11-JAN-93	LEISHMANIA	JW 11/12	-/+	4/- II	CNI	
Z000173 ALOR-RAYAR,	ı	BL	11-JAN-93	ГМ	60006	29-JUL-93	LEISHMANIA	JW 11/12	1	- NR		+REP
Z000174 ARMIN-KUMANJNE,	1	BL	11-JAN-93	ΓW	60006	11-JAN-93	LEISHMANIA	JW 11/12	+	+ RE	m	
Z000174 ARMIN-KUMANJNE,	1	BL	11-JAN-93	ΓW	60006	29-JUL-93	LEISHMANIA	JW 11/12	+	+ RE		+REP
Z000175 AMIL KUMAR,	,	BL	11-JAN-93	ΓW	60006	11-JAN-93	LEISHMANIA	JW 11/12	ı	ı R	n:	
Z000176 HASINER-KHAFIN,	•	BL	11-JAN-93	ΓW	60006	11-JAN-93	LEISHMANIA	JW 11/12	+	+ RE	m	
Z000176 HASINER-KHAFIN,	1	BL	11-JAN-93	ΕM	60006	29-JUL-93	LEISHMANIA	JW 11/12	+	i i	CNI	+REP
Z000177 SUMAY KUMAR,	ı	BL	11-JAN-93	ГW	60006	11~JAN-93	LEISHMANIA	JW 11/12	ı	- NR	٠.	
Z000178 RULI-KUMAR,	ı	BL	11-JAN-93	I.M	60006	11-JAN-93	LEISHMANIA	JW 11/12	+	+ RE	61	
Z000178 RULI-KUMAR,	•	BL	11-JAN-93	I'M	60006	29-JUL-93	LEISHMANIA	JW 11/12	+	+ RE		+REP
Z000257 30491,	ı	BL	18-FEB-93	ΓW	60006	19-FEB-93	LEISHMANIA	JW 11/12	+	+ RE	M	
Z000257 30491,	1	BL	18-FEB-93	ГW	60006	29-JUL-93	LEISHMANIA	JW 11/12	+	+ RE		+REP
Z000258 30492,	1	BIL	18-FEB-93	ΓW	60006	19-FEB-93	LEISHMANIA	JW 11/12	+	+ RE	Fri	
2000258 30492,	•	BL	18-FEB-93	ΓW	60006	29-JUL-93	LEISHMANIA	JW 11/12	+	+ RE		+REP
2000259 30493,	1	BL	19~FEB-93	Ι'M	60006	19-FEB-93	LEISHMANIA	JW 11/12	+	+ RE	M	
Z000259 30493,	1	BL	19-FEB-93	ГW	60006	29-JUL-93	LEISHMANIA	JW 11/12	+	+ RE		+REP
2000260 30494,	1	BL	18-FEB-93	ΓM	60006	19-FEB-93	LEISHMANIA	JW 11/12	+	+ RE	M	
Z000260 30494, `	•	BL	18-FEB-93	ΓM	60006	29-JUL-93	LEISHMANIA	JW 11/12	+	+ RE		+REP
Z000261 30495,	ı	BL	18-FEB-93	LM	60006	19-FEB-93	LEISHMANIA	JW 11/12	1	- NR	~	

				Probe JW 14									
Spec ID Patient Name	FPC + SSN	Spec	Received Date	Study	Panel	Panel Assay Date Virus	Virus	Primer	Tube # 1	Tube # 2	Int	Comments	
Z000262 30496,	1 1 1	BL	18-FEB-93	LM	60006	19-FEB-93	LEISHMANIA	JW 11/12	1	 	- R	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	!
2000263 30497,	· I	BL	18-FEB-93	ГМ	60006	19-FEB-93	LEISHMANIA	JW 11/12	1	•	M		
2000264 30481,	1	BL	18~FEB-93	ГМ	60006	19~FEB-93	LEISHMANIA	JW 11/12	1	1	M		
Z000308 30691A,	ı	BL	11-MAR-93	ГМ	60006	15-MAR-93	LEISHMANIA	JW 11/12	+	+	RE		
Z000308 30691A,	•	BL	11-MAR-93	LM	60006	29-JUL-93	LEISHMANIA	JW 11/12	+	+	RE	+REP	
Z000309 30692A,	1	BL	11-MAR-93	ГМ	60006	15-MAR-93	LEISHMANIA	JW 11/12	+	+	RE		
Z000309 30692A,	ı	BL	11-MAR-93	ГM	60006	29-JUL-93	LEISHMANIA	JW 11/12	+	+	RE	+REP	
Z000310 30693A,	1	BL	11-MAR-93	ГМ	60006	15-MAR-93	LEISHMANIA	JW 11/12	+	+	RE		
Z000310 30693A,	ı	BL	11-MAR-93	ш	60006	29-JUL-93	LEISHMANIA	JW 11/12	+	1	QNI	+REP	
Z000311 30694A,	ı	BL	11-MAR-93	EM	60006	15-MAR-93	LEISHMANIA	JW 11/12	1	t	MR		
Z000312 30695A,	ı	BL	11-MAR-93	EM	60006	15-MAR-93	LEISHMANIA	JW 11/12	+	+	RE		
Z000312 30695A,	ı	BL	11-MAR-93	ГМ	60006	29-JUL-93	LEISHMANIA	JW 11/12	+	+	RE	+REP	
Z000313 WILT, TIMOTHY L	03-205-21-9045	BL	12-MAR-93	I.M	60006	15-MAR-93	LEISHMANIA	JW 11/12	ı	t	MR		
Z000320 PT. PLC,	1	BL	23-MAR-93	ΓW	60006	25-MAR-93	LEISHMANIA	JW 11/12	+	+	RE		
Z000320 PT. PLC,	ı	BL	23-MAR-93	LM	60006	05-APR-93	LEISHMANIA	JW 11/12	1	ı	Æ		
Z000320 PT. PLC,	1	BI	23-MAR-93	LM	60006	29-JUL-93	LEISHMANIA	JW 11/12	1	-/+	Œ.	+REP	
Z000321 PT. C.A.N.,	1	BL	23-MAR-93	I.M	60006	05-APR-93	LEISHMANIA	JW 11/12	i	1	NR		
Z000321 PT. C.A.N.,	ı	BL	23-MAR-93	ΓW	60006	25-MAR-93	LEISHMANIA	JW 11/12	ı	Ì	NR		
Z000336 1,	ı	BL	26-MAR-93	ΓM	60006	29-JUL-93	LEISHMANIA	JW 11/12	+	+	RE	+REP	
2000339 4,	1	BL	26-MAR-93	ГМ	60006	29-JUL-93	LEISHMANIA	JW 11/12	+	+	RE	+REP	
Z000340 5,	1	BL	26-MAR-93	LM	60006	29-JUL-93	LEISHMANIA	JW 11/12	ı	1	NR	+REP	
Z000342 7,	t	BL	26-MAR-93	LM	60006	29-JUL-93	LEISHMANIA	JW 11/12	+	+	RE	+REP	
2000343 8,		BL	26-MAR-93	μΊ	60006	29-JUL-93	LEISHMANIA	JW 11/12	+	+	RE	+REP	

			-	Probe JW 14								
Spec ID Patient Name	FPC + SSN	Spec Type	Received Date	Study	Panel	Assay Date Virus	Virus	Primer	Tube Tub # 1 # 2	Tube # 2 Int	Comments	
Z000344 9,	! ! ! ! ! ! !	BL	26-MAR-93		60006	29-JUL-93	LEISHMANIA	JW 11/12	: +	 + RE	+REP	
Z000345 10,	1	BL	26-MAR-93	ГМ	60006	29-JUL-93	LEISHMANIA	JW 11/12	+	+ RE	+REP, -CON	
Z000346 11,	ſ	BL	26-MAR-93	LM	60006	29-JUL-93	LEISHMANIA	JW 11/12	+	+ RE	+REP	
Z000347 12,	1	BL	26-MAR-93	LIM	60006	29-JUL-93	LEISHMANIA	JW 11/12	+	+ RE	+REP	
Z000349 14,	,	BL	26-MAR-93	LM	60006	29-JUL-93	LEISHMANIA	JW 11/12	+	+ RE	+REP	
Z000351 16,	1	BĽ	26-MAR-93	ГМ	60006	29-JUL-93	LEISHMANIA	JW 11/12	+	+ RE	+REP	
Z000352 17,	1	BL	26-MAR-93	LM	60006	29-JUL-93	LEISHMANIA	JW 11/12	+	+ RE	+REP	
Z000353 20,	ı	BL	26-MAR-93	ΓM	60006	29-JUL-93	LEISHMANIA	JW 11/12	+	+ RE	+REP	
Z000354 21,	1	BL	26-MAR-93	IIM	60006	29-JUL-93	LEISHMANIA	JW 11/12	+	+ RE	+REP	
Z000355 22,	ı	BL	26-MAR-93	ГW	60006	29-JUL-93	LEISHMANIA	JW 11/12	+	+ RE	+REP	
Z000356 23,	ı	BL	26-MAR-93	I'M	60006	29-JUL-93	LEISHMANIA	JW 11/12	+	+ RE	+REP	
Z000367 30911,	1	BL	01-APR-93	ГМ	60006	05-APR-93	LEISHMANIA	JW 11/12	1	Ä.		
Z000368 30912,	1	BL	01-APR-93	ΓM	60006	05-APR-93	LEISHMANIA	JW 11/12	1	- NA		
Z000369 30913,	1	BĽ	01-APR-93	LM	60006	05-APR-93	LEISHMANIA	JW 11/12	1	- RR		
Z000370 30914,	1	BL	01-APR-93	Ϊ́Μ	60006	05-APR-93	LEISHMANIA	JW 11/12	ı	NR		
Z000379 31022,	ı	BĽ	12-APR-93	ĽΨ	60006	29-JUL-93	LEISHMANIA	JW 11/12	,	- NR	+REP	
Z000413 GABORONE, JB	f	BĽ	23-APR-93	ГМ	60006	27-APR-93	LEISHMANIA	JW 11/12	1	ONI +/-		
Z000414 JASON, DAVID	1	BL	23-APR-93	гм	60006	27-APR-93	LEISHMANIA	JW 11/12	ı	-/+ IND		
Z000460 RUBENSTEIN, GRAIG	1	ВМ	21-MAY-93	LM	60006	01-JUL-93	LEISHMANIA	JW 11/12	,	- NA		
Z000460 RUBENSTEIN, GRAIG		BM	21-MAY-93	ГM	60006	25-MAY-93	LEISHMANIA	JW 11/12	1	- NR		
Z000461 RUBENSTEIN, GRAIG		BL	21-MAY-93	ΓW	60006	01-JUL-93	LEISHMANIA	JW 11/12	1	- NR		
Z000461 RUBENSTEIN, GRAIG	1	BL	21-MAY-93	LM	60006	25-MAY-93	LEISHMANIA	JW 11/12		. NR		
Z000473 J40,		BL	26-MAY-93	ГМ	60006	27-MAY-93	LEISHMANIA	JW 11/12	+	RE		

				11 10 0007								
Spec ID Patient Name	FPC + SSN	Spec R Type D	Received Date	Study	Panel	Assay Date Virus	Virus	Primer	Tube # 1	Tube # 2 1	Int	Comments
Z000473 J40,			26-MAY-93	ΓM	60006	29-JUL-93	LEISHMANIA	JW 11/12	 	1	E E	
Z000474 PBS AIL,	. 1	BL 2	86-MAY-93	ľМ	60006	27-MAY-93	LEISHMANIA	JW 11/12	+	+	RE	
Z000474 PBS AIL,	ı	BL 2	26-MAY-93	LM	60006	29-JUL-93	LEISHMANIA	JW 11/12	ı	1	N.	+REP
Z000475 J45,	1	BL 2	26-MAY-93	LM	60006	27-MAY-93	LEISHMANIA	JW 11/12	+	+	RE	
Z000475 J45,	1	BL 2	26-MAY-93	WI	60006	29-JUL-93	LEISHMANIA	JW 11/12	ı	i	MR	+REP
Z000476 J4N,	t	BL 2	26-MAY-93	ГМ	60006	27-MAY-93	LEISHMANIA	JW 11/12	+	+	RE	
Z000476 J4N,	1	BL 2	26-MAY-93	ГМ	60006	29-JUL-93	LEISHMANIA	JW 11/12	ı	1 .	Æ	+REP
Z000501 31601,	ı	BL 0	56-NUL-60	LM	60006	15-JUN-93	LEISHMANIA	JW 11/12	ı	ı	Æ	
Z000502 31601,	1	BM 0	86-NUL-60	ΓW	60006	15-JUN-93	LEISHMANIA	JW 11/12	ı	ı	展	
Z000503 31621,	1	BL 1	11-JUN-93	ΓΜ	60006	15-JUN-93	LEISHMANIA	JW 11/12	+	+	RE	
Z000503 31621,	ı	BL 1	11-JUN-93	LM	60006	29-JUL-93	LEISHMANIA	JW 11/12	ì	-/+	GNI	+REP
Z000504 31622,	ı	BL 1	.4 - JUN - 93	ГМ	60006	15-JUN-93	LEISHMANIA	JW 11/12	+	+	RE	
Z000504 31622,	Ī	BL 1	.4-JUN-93	LM	60006	29-JUL-93	LEISHMANIA	JW 11/12	ı	1	Æ	+REP
Z000505 31623,	1	BL 1	L1-JUN-93	ΓΜ	60006	15-JUN-93	LEISHMANIA	JW 11/12	+	+	RE	
Z000505 31623,	Ī	BL 1	L1-JUN-93	ГМ	60006	29~JUL-93	LEISHMANIA	JW 11/12		1	NR	+REP
Z000506 31624,	1	BL 1	11-JUN-93	ĽМ	60006	15-JUN-93	LEISHMANIA	JW 11/12	+	+	RE	
Z000506 31624,	ţ	BL 1	11-JUN-93	ГМ	60006	29-JUL-93	LEISHMANIA	JW 11/12	+	+	RE	+REP
Z000507 CHIPLEY, JOSHUA W	20-564-33-6887	TE 1	11-JUN-93	ΓΜ	60006	15-JUN-93	LEISHMANIA	JW 11/12	1	1	NR.	
Z000508 CHIPLEY, JOSHUA W	20-564-33-6887	TE 1	11-JUN-93	ΓΜ	60006	15-JUN-93	LEISHMANIA	JW 11/12	1	,	R	
Z000511 WILLIAMS, MARQUET	t	PL 2	24-JUN-93	LM	60006	07-JUL-93	LEISHMANIA	JW 11/12	ı	•	NA NA	
Z000517 31881,	1	BL 0	7-JUL-93	LM	60006	09-JUL-93	LEISHMANIA	JW 11/12	•		MR	
Z000518 31882,	1	BL 0	7-JUL-93	LM	60006	09-JUL-93	LEISHMANIA	JW 11/12		1	MR	
Z000519 31883,	1	BL 0	7-JUL-93	ĽМ	60006	09-JUL-93	LEISHMANIA	JW 11/12	+	+	RE	

				Frone ow 14									
Spec ID Patient Name	FPC + SSN	Spec 1 Type 1	Received Date	Study	Panel	Assay Date Virus	Virus	Primer	Tube I # 1 #	Tube # 2 Ir	Int Co	Comments	
Z000520 31884,		BL	07-JUL-93	IIM	60006	09-JUL-93	LEISHMANIA	JW 11/12	+	H	RE		
Z000541 31931,	1	BL	12-JUL-93	I.M	60006	16-JUL-93	LEISHMANIA	JW 11/12	+	+	RE		
Z000541 31931,	1	BL	12-JUL-93	IIM	60006	29-JUL-93	LEISHMANIA	JW 11/12	+	+	RE		
2000542 31932,	ı	BL	12-JUL-93	ГM	60006	16-JUL-93	LEISHMANIA	JW 11/12	+	+	RE		
Z000542 31932,	1	BL	12-JUL-93	ГМ	60006	29-JUL-93	LEISHMANIA	JW 11/12	+	+	RE		
Z000543 31933,	ı	BL	12-JUL-93	IIM	60006	16-JUL-93	LEISHMANIA	JW 11/12	+	+/- 1	IND		
Z000543 31933,	1	BL	12-JUL-93	ГМ	60006	29-JUL-93	LEISHMANIA	JW 11/12	+	+	RE		
Z000550 31971,	ı	BI	16-JUL-93	LM	60006	29-JUL-93	LEISHMANIA	JW 11/12		I -/+	IND		
2000551 31972,	1	EI.	16-JUL-93	ΙM	60006	29~JUL-93	LEISHMANIA	JW 11/12	t	Z	MR		
20345 HAMMACK, WENDELL	20-427-49-8157	WE WE	27-JAN-93	ГМ	60006	04-AUG-93	LEISHMANIA	JW 11/12	+	-	ONI	+REP	
20344 HAMMACK, WENDELL	20-427-49-8157	BI	27-JAN-93	ĽΜ	60006	03-AUG-93	LEISHMANIA	JW 11/12	ı	Z	MR	+REP	
23345 GHEBREMESCHEL, TADDE	20-049-34-1541	BM	27-MAY-93	ГМ	60006	04-AUG-93	LEISHMANIA	JW 11/12	+	1	IND	+REP	
Z000101 2A125-A,	í	BL (09-DEC-92	LM	60006	04-AUG-93	LEISHMANIA	JW 11/12	+	+	RE	+REP	
Z000104 2A125-D,	t	BL (09-DEC-92	ΓM	60006	04-AUG-93	LEISHMANIA	JW 11/12	+	+	RE	+REP	
Z000105 2A125-E,	ı	BL (19-DEC-92	ĽΜ	60006	04-AUG-93	LEISHMANIA	JW 11/12	+	+	RE	+REP	
Z000112 2A125-6,	1	BL (19-DEC-92	ГW	60006	04-AUG-93	LEISHMANIA	JW 11/12	+	+	RE	+REP	
Z000117 2A125-A,	1	BL 1	16-DEC-92	ΓīΜ	60006	04-AUG-93	LEISHMANIA	JW 11/12	+	+	RE	+REP	
Z000145 2A125-5,	ſ	BL 1	16-DEC-92	ΓW	60006	04-AUG-93	LEISHMANIA	JW 11/12	,	z	NR	+REP	
Z000310 30693A,	1	BL 1	11-MAR-93	LM	60006	04-AUG-93	LEISHMANIA	JW 11/12	+	+	RE	+REP	
2000340 5,		BL 2	26-MAR-93	LM	60006	04-AUG-93	LEISHMANIA	JW 11/12	ı	z	NA NA	+RBP	
Z000379 31022,	1	BL 1	12-APR-93	LM	60006	04-AUG-93	LEISHMANIA	JW 11/12	+	+	RE	+REP	
Z000439 1,	ı	BL 3	30-APR-93	LM	60006	04-AUG-93	LEISHMANIA	JW 11/12	ı	Zi I	NR	+REP	
2000440 2,	ı	BL 3	30-APR-93	LM	60006	04-AUG-93	LEISHMANIA	JW 11/12	ı	+	CNI	+REP	

	į	Spec	Received	Probe JW 14					Tube	Tube			
Spec ID Patient Name	FPC + SSN	Type Date	Date	Study	Panel	Assay Date Virus	Virus	Primer	T #	# 5	Int	Comments	
Z000466 GRAVES, ERIC	20-003-60-3564	ΓI	25-MAY-93	IJM	60006	04-AUG-93	LEISHMANIA	JW 11/12	+	+	RE	+REP	!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
Z000473 J40,	. 1	BL	26-MAY-93	ΓM	60006	04-AUG-93	LEISHMANIA	JW 11/12	1	+	ONI	+REP	
Z000474 PBS AIL,	ı	BL	26-MAY-93	LM	60006	04-AUG-93	LEISHMANIA	JW 11/12	+	+	RE	+REP	
Z000475 J45,	1	BI	26-MAY-93	I'M	60006	04-AUG-93	LEISHMANIA	JW 11/12	+	ı	Q	+REP	
Z000476 J4N,	į	BĽ	26-MAY-93	LM	60006	04-AUG-93	LEISHMANIA	JW 11/12	+	+	RE	+REP	
Z000503 31621,	ı	BL	11-JUN-93	LM	60006	04-AUG-93	LEISHMANIA	JW 11/12	+	+	RE	+REP	
20345 HAMMACK, WENDELL	20-427-49-8157	BM	27-JAN-93	LM	60006	03-AUG-93	LEISHMANIA	JW 11/12	ı	ı	MR	+REP, NEG	NEG. CONT
21552 SCHONEBOOM, BRAD L	20-367-76-1421	BM	15-MAR-93	Ϊ́Μ	60006	03-AUG-93	LEISHMANIA	JW 11/12	1	1	NR.	+REP	
22745 WADDELL, DIRK	20-343-56-3223	BL	04-MAY-93	ГW	60006	03-AUG-93	LEISHMANIA	JW 11/12	ı	1	NR	+REP	
23046 WADDELL, DIRK	20-343-56-3223	BL	17-MAY-93	I.M	60006	03-AUG-93	LEISHMANIA	JW 11/12	ı	1	NA R	+REP	
23250 CHIPLEY, JOSHUA W	20-564-33-6887	BL	21-MAY-93	ΓM	60006	03-AUG-93	LEISHMANIA	JW 11/12	•	+	GNI	+REP	
23345 GHEBREMESCHEL, TADDE	20-049-34-1541	BM	27-MAY-93	WI	60006	03-AUG-93	LEISHMANIA	JW 11/12	1	ı	æ	+REP	
Z000101 2A125-A,	1	BL	09-DEC-92	LM	60006	03-AUG-93	LEISHMANIA	JW 11/12	ı	1	æ	+REP	
Z000104 2A125-D,	f	BL	09-DEC-92	ITM	60006	03-AUG-93	LEISHMANIA	JW 11/12	ı	1	NR.	+REP	
Z000105 2A125-E,	í	BL	09-DEC-92	I.M	60006	03-AUG-93	LEISHMANIA	JW 11/12	•	+	ONI	+REP	
Z000106 2A125-F,	,	BL	09-DEC-92	ГМ	60006	03-AUG-93	LEISHMANIA	JW 11/12	+	+	RE	+REP	
Z000107 2A125-1,	ı	BL	09-DEC-92	I.M	60006	03-AUG-93	LEISHMANIA	JW 11/12	+	+	RE	+REP	
Z000110 2A125-4,	ı	BL	09-DEC-92	ГМ	60006	03-AUG-93	LEISHMANIA	JW 11/12	+	+	RE	+REP	
Z000111 2A125-5,	1	BL	09-DEC-92	I.M	60006	03-AUG-93	LEISHMANIA	JW 11/12	+	+	RE	+REP	
Z000112 2A125-6,	1	BL	09-DEC-92	LM	60006	03-AUG-93	LEISHMANIA	JW 11/12	+	+	RE	+REP	
Z000117 2A125-A,	1	BL	16-DEC-92	ΓM	60006	03-AUG-93	LEISHMANIA	JW 11/12	1	1	NR	+REP	
Z000118 2A125-B,	i	BL	16-DEC-92	LM	60006	03-AUG-93	LEISHMANIA	JW 11/12	,	ŧ	NR R	+REP	
Z000120 2A125-D,	•	BL	16-DEC-92	ГМ	60006	03-AUG-93	LEISHMANIA	JW 11/12	+	+	RE	+REP	

				Probe JW 14								
Spec ID Patient Name	FPC + SSN	Spec Type	Received Date	Study	Panel	Assay Date Virus	Virus	Primer	Tube T # 1 #	Tube # 2 Ir	Int	Comments
Z000144 ZA125-4,		BL	16-DEC-92	LM	60006	03-AUG-93	LEISHMANIA	JW 11/12	+	+	RE	+REP
Z000145 2A125-5,	. 1	BL	16-DEC-92	ΓM	60006	03-AUG-93	LEISHMANIA	JW 11/12	,	1	N.	+REP
Z000146 2A125-6,	1	BL	16-DEC-92	ΓW	60006	03-AUG-93	LEISHMANIA	JW 11/12	1	1	Æ	+REO
Z000440 2,	ſ	BL	30-APR-93	LM	60006	03-AUG-93	LEISHMANIA	JW 11/12	1	,	展	+REP
Z000350 15,	1	BL	26-MAR-93	I"М	60006	03-AUG-93	LEISHMANIA	JW 11/12	+	+	RE	+REP
2000439 1,	ı	BL	30-APR-93	I.M	60006	03-AUG-93	LEISHMANIA	JW 11/12	ı	1	ĸ	+REP
Z000466 GRAVES, ERIC	20-003-60-3564	LI	25-MAY-93	ΓM	60006	03-AUG-93	LEISHMANIA	JW 11/12	ı	1	æ	+REP
22955 DARBY, GREGORY S	20-505-06-2923	BL	12-MAY-93	ГМ	60006	03-AUG-93	LEISHMANIA	JW 11/12	+	+	RE	+REP
23328 J4,	1	BĽ	26-MAY-93	ГМ	60006	03-AUG-93	LEISHMANIA	JW 11/12	+	+	RE	+REP
23328 J4,	1	BL	26-MAY-93	ΓM	60006	03-AUG-93	LEISHMANIA	JW 11/12	+	+	RE	+REP
Z000170 KOMESHCOAR,	,	BL	11-JAN-93	Γ'M	60006	03-AUG-93	LEISHMANIA	JW 11/12	+	+	RE	+REP, CONT
Z000172 JAINAI,	1	BL	11-JAN-93	ГМ	60006	03-AUG-93	LEISHMANIA	JW 11/12	+	+	RE	+REP
Z000173 ALOR-RAYAR,	ı	BI	11-JAN-93	ГМ	60006	03-AUG-93	LEISHMANIA	JW 11/12	1	1	Æ	+REP
Z000176 HASINER-KHAFIN,		BL	11-JAN-93	ГМ	60006	03-AUG-93	LEISHMANIA	JW 11/12	+	+	RE	+REP
Z000310 30693A,	1	BL	11-MAR-93	ГМ	60006	03-AUG-93	LEISHMANIA	JW 11/12	+	+	RE	+REP, CONT
Z000320 PT. PLC,	1	BL	23-MAR-93	ĽΜ	60006	03-AUG-93	LEISHMANIA	JW 11/12	+	px, +	RE	+REP
Z000379 31022,	ı	BL	12-APR-93	LIM	60006	03-AUG-93	LEISHMANIA	JW 11/12	ı	,	N.	+REP
Z000473 J40,	,	BL	26-MAY-93	IM	60006	03-AUG-93	LEISHMANIA	JW 11/12	1	2	NR.	+REP
Z000474 PBS AIL,	ı	BL	26-MAY-93	I.M	60006	03-AUG-93	LEISHMANIA	JW 11/12	1	+	QNI	+REP, CONT
Z000475 J45,	ı	BL	26-MAY-93	ΓM	60006	03-AUG-93	LEISHMANIA	JW 11/12	+	ı	CNI	+REP
Z000476 J4N,	1	BL	26-MAY-93	LM	60006	03-AUG-93	LEISHMANIA	JW 11/12	+	H 1	IND	+REP
Z000503 31621,	,	BL	11-JUN-93	ГМ	60006	03-AUG-93	LEISHMANIA	JW 11/12	1	+	ONI	+REP
Z000504 31622,	ı	BL	14-JUN-93	LM	60006	03-AUG-93	LEISHMANIA	JW 11/12	+	+	RE	+REP

Report Date:

				TT NO DOOT								
Spec ID Patient Name	FPC + SSN	Spec	Received Date	Study	Panel	Assay Date Virus	Virus	Primer	Tube #	Tube #2]	Int	Comments
Z000505 31623,		BL	11-JUN-93	ΓW	60006	03-AUG-93	LEISHMANIA	JW 11/12	+	+	RE	+REP
Z000170 KOMESHCOAR,	1	BL	11-JAN-93	ГМ	60006	03-AUG-93	LEISHMANIA	JW 11/12	+	1	GNI	REP. PL.
Z000170 KOMESHCOAR,	ı	BL	11-JAN-93	ГМ	60006	03-AUG-93	LEISHMANIA	JW 11/12	+	1	ONI	REP. PL.
Z000310 30693A,	1	BL	11-MAR-93	LM	60006	03-AUG-93	LEISHMANIA	JW 11/12	+	ı	CNI	REP. PL.
Z000310 30693A,	•	BL	11-MAR-93	Ϊ́Μ	60006	03-AUG-93	LEISHMANIA	JW 11/12	1	1	MR	REP. PL
Z000503 31621,	1	BL	11-JUN-93	IIM	60006	03-AUG-93	LEISHMANIA	JW 11/12	+	+	RE	REP. PL.
2000504 31622,	1	BL	14-JUN-93	LM	60006	03-AUG-93	LEISHMANIA	JW 11/12	+	ı	Q	REP. PL.
23250 CHIPLEY, JOSHUA W	20-564-33-6887	BL	21-MAY-93	ILM	60006	03-AUG-93	LEISHMANIA	JW 11/12	1	t	Ħ	REP. PL., DIL
Z000105 ZA125-E,	1	BL	09-DEC-92	LM	60006	03-AUG-93	LEISHMANIA	JW 11/12	ı	ı	Ä	REP. PL
24930 32211,	1	ΒĽ	09-AUG-93	LM	60006	16-AUG-93	LEISHMANIA	JW 11/12	ı		NR.	
24931 32212,		BL	09-AUG-93	ΓW	60006	16-AUG-93	LEISHMANIA	JW 11/12		1	NR.	
24932 32213,	1	BL	09-AUG-93	LM	60006	16-AUG-93	LEISHMANIA	JW 11/12	1	ı	æ	
Z000550 31971,	ı	BL	16-JUL-93	LM	60006	16-AUG-93	LEISHMANIA	JW 11/12	1	ı	NR	
Z000591 LEH1663,	ı	BL	05-AUG-93	ГМ	60006	16-AUG-93	LEISHMANIA	JW 11/12	1	1	NR.	
Z000592 LEH1664,	ı	BL	05-AUG-93	LM	60006	16-AUG-93	LEISHMANIA	JW 11/12	ı	1	æ	
Z000593 LEH1665,	ı	BL	05-AUG-93	ГМ	60006	16-AUG-93	LEISHMANIA	JW 11/12	ŧ		MR	
Z000594 LEH1666,	ſ	BL	05-AUG-93	ГМ	60006	16-AUG-93	LEISHMANIA	JW 11/12	1	1	NR.	
Z000595 LEH1667,	1	BL	05-AUG-93	ГМ	60006	16-AUG-93	LEISHMANIA	JW 11/12	+	+	RE	
Z000596 LEH1668,	ı	BL	05-AUG-93	ГМ	60006	16-AUG-93	LEISHMANIA	JW 11/12	+	+	RE	
Z000597 BLUSAU-MIZBSA, SHASH	í	BL	10-AUG-93	EM	60006	16-AUG-93	LEISHMANIA	JW 11/12	+	+	RE	
Z000598 BLUSAU-MIZBSA, SHASH	ı	BL	10-AUG-93	Ш	60006	16-AUG-93	LEISHMANIA	JW 11/12	+	+	RE	
Z000599 CPT-2,	1	BL	10-AUG-93	IM	60006	16-AUG-93	LEISHMANIA	JW 11/12	+	+	RE	
Z000600 KERRY, SUDHRI		BL	10-AUG-93	LM	60006	16-AUG-93	LEISHMANIA	JW 11/12	+	+	RE	

		Spec	ved	Probe JW 14					Tube	Tube		
Spec ID Patient Name	FPC + SSN	Type Date	Date	Study	Panel	Panel Assay Date Virus	Virus	Primer	#	# 2	Int	Comments
Z000601 RAJUARA, SUTHER-KWAR	1	BĽ	10-AUG-93	ΓM	60006	16-AUG-93	LEISHMANIA	JW 11/12	+	+	RE	
Z000602 DEIS, GEETA		BL	10-AUG-93	ΓΜ	60006	16-AUG-93	LEISHMANIA	JW 11/12	+	+	RE	
Z000603 DEIS, GEETA	1	BL	10-AUG-93	ΜΊ	60006	16-AUG-93	LEISHMANIA	JW 11/12	+	+	RE	
Z000604 THAFCER, SURON		BL	10-AUG-93	ГМ	60006	16-AUG-93	LEISHMANIA	JW 11/12	+	+	RE	
Z000605 SHUYARRU, KERROZ	1	BĽ	10-AUG-93	ΓM	60006	16-AUG-93	LEISHMANIA	JW 11/12	+	+	RE	
Z000606 REEJU, DAS	ı	BL	10-AUG-93	IIM	60006	16-AUG-93	LEISHMANIA	JW 11/12	+	+	RE	
Z000607 SHAUMARTI, CHEWHY	,	BL	10-AUG-93	IIM	60006	16-AUG-93	LEISHMANIA	JW 11/12		1	NR	
Z000608 RAKESH, KUMAR	ì	BL	10-AUG-93	Ι'Μ	60006	16-AUG-93	LEISHMANIA	JW 11/12		1	NR.	
Z000609 MIRTHELESWAR, PRASAD	Í	BL	10-AUG-93	Ϊ́Μ	60006	16-AUG-93	LEISHMANIA	JW 11/12	ı	1	R	
Z000610 NARESH, PASWAN	1	BL	10-AUG-93	ΓW	60006	16-AUG-93	LEISHMANIA	JW 11/12	ı	ı	NR	
Z000611 RAJESWAR, PD	ſ	BL	10-AUG-93	IIM	60006	16-AUG-93	LEISHMANIA	JW 11/12		į	NR.	
Z000612 RUBY, KUMARI		BL	10-AUG-93	IIM	60006	16-AUG-93	LEISHMANIA	JW 11/12	ı	,	R	
Z000613 RAM, JINISH	1	BL	10-AUG-93	LM	60006	16-AUG-93	LEISHMANIA	JW 11/12	1	J	Ŗ	
Z000614 MANOJ, RAM	ı	BL	10-AUG-93	LM	60006	16-AUG-93	LEISHMANIA	JW 11/12		1	MR	
Z000615 RUBI, KUMARIS	,	BL	10-AUG-93	IIM	60006	16-AUG-93	LEISHMANIA	JW 11/12	ı	ı	Ä	
Z000616 RAITHA, MAHAU		BL	10-AUG-93	LM	60006	16-AUG-93	LEISHMANIA	JW 11/12	1	ŀ	æ	
Z000617 GANESH, MALRBO	ı	BL	10-AUG-93	ГW	60006	16-AUG-93	LEISHMANIA	JW 11/12	+	+	RE	
Z000618 SUMIL, KUMAR	1	BL	10-AUG-93	IM	60006	16-AUG-93	LEISHMANIA	JW 11/12	+	+	RE	
Z000619 UMESH, SAH	•	BL	10-AUG-93	ГМ	60006	16-AUG-93	LEISHMANIA	JW 11/12	+	+	RE	
Z000620 SARISI,	1	BL	10-AUG-93	ΓW	60006	16-AUG-93	LEISHMANIA	JW 11/12	+	+	RE	
Z000625 RHARAURBIR,	ı	Bī	10-AUG-93	IIM	60006	16-AUG-93	LEISHMANIA	JW 11/12	+	+	RE	
Z000626 MANAJ, RAUU	1	BL	10-AUG-93	LM	60006	16-AUG-93	LEISHMANIA	JW 11/12	1	ı	MR.	
Z000627 RAMJINEESH, PANDIT		BL	10-AUG-93	ΓΜ	60006	16-AUG-93	LEISHMANIA	JW 11/12		ı	NR	

				#T 10 00011							
Spec ID Patient Name	FPC + SSN	Spec	Kecelved Date	Study	Panel	Assay Date	Virus	Primer	Tube Tr # 1 #	Tube # 2 Int	Comments
Z000628 ANUJ, RANJAN		BL	10-AUG-93	IM	60006	16-AUG-93	LEISHMANIA	JW 11/12	i ! ! !	EX.	
Z000629 MITHILESHWAR, PD SIR	I .	BL	10-AUG-93	LM	60006	16-AUG-93	LEISHMANIA	JW 11/12	+	+ RE	
Z000630 RAKESH, KUMAR	. 1	BL	10-AUG-93	ΓW	60006	16-AUG-93	LEISHMANIA	JW 11/12	+	+ RE	
Z000631 NARESH, PASWAN	1	BL	10-AUG-93	ΓW	60006	16-AUG-93	LEISHMANIA	JW 11/12	+	+ RE	-
Z000632 GHAMANDI, CHAUDHARY	1	BL	10-AUG-93	LM	60006	16-AUG-93	LEISHMANIA	JW 11/12	+	+ RE	
Z000633 RAJU, DAS	ı	BL	10-AUG-93	ГМ	60006	16-AUG-93	LEISHMANIA	JW 11/12	+	+ RE	
Z000634 SHYAM, SAH K	1	BL	10-AUG-93	I'M	60006	16-AUG-93	LEISHMANIA	JW 11/12	+	+ RE	
Z000635 RAMAKANKA, RAI	t	BL	10-AUG-93	LM	60006	16-AUG-93	LEISHMANIA	JW 11/12	+	+ RE	
Z000636 SITAWAR, DEVI	1	BL	10-AUG-93	I.M	60006	16-AUG-93	LEISHMANIA	JW 11/12	ı	- NR	
Z000637 SAMOD, KUMAR	t	BL	10-AUG-93	LM	60006	16-AUG-93	LEISHMANIA	JW 11/12	,	- NR	
Z000638 RAJESH, KUMAR	1	BL	10-AUG-93	ГМ	60006	16-AUG-93	LEISHMANIA	JW 11/12	t	, NR	
Z000639 CHAUDSA, CHEVZ	ı	BL	10-AUG-93	LM	60006	16-AUG-93	LEISHMANIA	JW 11/12	+	+ RE	
Z000640 RAYETH, LAMB	t	BL	10-AUG-93	I.M	60006	16-AUG-93	LEISHMANIA	JW 11/12	1	, RR	
Z000641 SUJAFEI, LAMB	1	BL	10-AUG-93	IAM	60006	16-AUG-93	LEISHMANIA	JW 11/12	+	+ RE	
Z000642 SAMUR, KUNG	1	BL	10-AUG-93	ГМ	60006	16-AUG-93	LEISHMANIA	JW 11/12	ı	- NR	
Z000643 AREY, RAYAN	•	BL	10-AUG-93	ГМ	60006	16-AUG-93	LEISHMANIA	JW 11/12	ı	- NR	
Z000644 DHARAURLIY,	1	BL	10-AUG-93	I.M	60006	16-AUG-93	LEISHMANIA	JW 11/12	+	+ RE	
Z000645 VMESH, SCH	Í	BL	10-AUG-93	LIM	60006	16-AUG-93	LEISHMANIA	JW 11/12	+	+ RE	
Z000646 SARITA, KUMARI	ì	BL	10-AUG-93	Ш	60006	16-AUG-93	LEISHMANIA	JW 11/12	+	+ RE	
23084 VEGA, EDUARDO A	20-584-54-8581	BI	18-MAY-93	RV2	60006	20-MAY-93	LEISHMANIA	JW 11/12	1	- FR	
23085 GRAVES, ERIC	20-003-60-3564	BM	18-MAY-93	LM	60006	20-MAY-93	LEISHMANIA	JW 11/12	1	- NR	
22977 274D,		BL	12-MAY-93	LM	60006	20-MAY-93	LEISHMANIA	JW 11/12	1	- NR	
23012 WADDELL, DIRK	20-343-56-3223	BĽ	14-MAY-93	ГМ	60006	20-MAY-93	LEISHMANIA	JW 11/12		-/+	Α

Spec ID Patient Name	FPC + SSN	Spec Type	Received Date	Study	Pane	Panel Assay Date Virus	Virus	Primer	Tube	Tube # 2	Int	Comments	
23046 WADDELL, DIRK	20-343-56-3223	BL	17-MAY-93	LM.	60006	20-MAY-93	LEISHMANIA	JW 11/12	+	+	RE	 	
Z000647 RUSHA, MOHAN SINGH	. 1	BL	10-AUG-93	IIM	60006	24-AUG-93	LEISHMANIA	JW 11/12	,	1	MR	-REP	
22970 A346,	1	BL	12-MAY-93	MI	60006	20-MAY-93	LEISHMANIA	JW 11/12	+	ı	ONI		
Z000650 RAMESH, KW	ŧ	BL	10-AUG-93	ΙīΜ	60006	24-AUG-93	LEISHMANIA	JW 11/12	+	1	IND	-REP	
Z000651 RAMAKAWT, RAI	1	BL	10-AUG-93	ΓM	60006	24-AUG-93	LEISHMANIA	JW 11/12	1		MR	-REP	
Z000652 BUDHAN, MAHTO	1	BL	10-AUG-93	EM	60006	24-AUG-93	LEISHMANIA	JW 11/12	+	+	RE	-REP	
Z000653 SILAWAR, DEVI	r	BL	10-AUG-93	ΙΤΜ	60006	24-AUG-93	LEISHMANIA	JW 11/12	ı	1	NR	-REP	
Z000654 SUDHIR, KUMAR	1	BL	10-AUG-93	ΨΊ	60006	24-AUG-93	LEISHMANIA	JW 11/12	+	+	RE	-REP	
Z000655 SARRAULLAH,	ŧ	BI	10-AUG-93	ГМ	60006	24-AUG-93	LEISHMANIA	JW 11/12	ı	1	Ä	-REP	
Z000657 MO, SONAWAE	t	BL	10-AUG-93	I'M	60006	24-AUG-93	LEISHMANIA	JW 11/12	1	1	Ä	-REP	
Z000658 SWUGH, THAKUR	1	BL	10-AUG-93	I'M	60006	24-AUG-93	LEISHMANIA	JW 11/12	+	+	RE	-REP	
2000659 32251,	1	BL	13-AUG-93	IJM	60006	24-AUG-93	LEISHMANIA	JW 11/12	1	1	NR	-REP	
Z000660 32252,	1	ВМ	13-AUG-93	LM	60006	24-AUG-93	LEISHMANIA	JW 11/12	1	ı	MR	-REP	
Z000668 32253,	ı	BL	13-AUG-93	IIM	60006	24-AUG-93	LEISHMANIA	JW 11/12	1	1	NR.	-REP	
Z000669 32254,	ı	BL	13-AUG-93	I.M	60006	24-AUG-93	LEISHMANIA	JW 11/12	1	+	ONI	-REP	
24930 32211,	i	BL	09-AUG-93	I.M	60006	24-AUG-93	LEISHMANIA	JW 11/12	-/+	1	IND	-REP	
24931 32212,	ı	BL	09-AUG-93	ГМ	60006	24-AUG-93	LEISHMANIA	JW 11/12	•	1	MR	-REP	
24932 32213,		BL	09-AUG-93	ΓW	60006	24-AUG-93	LEISHMANIA	JW 11/12	1	1	NR	-REP	
Z000591 LEH1663,	1	BL	05-AUG-93	ГМ	60006	24-AUG-93	LEISHMANIA	JW 11/12	+	ı	ONI	-REP	
Z000592 LEH1664,	1	BL	05-AUG-93	I'W	60006	24-AUG-93	LEISHMANIA	JW 11/12	•	t	Æ	-REP	
Z000593 LEH1665,	t	BL	05-AUG-93	ΜΊ	60006	24-AUG-93	LEISHMANIA	JW 11/12	•	1	MR	-REP	
Z000594 LEH1666,	ı	BL	05-AUG-93	LM	60006	24-AUG-93	LEISHMANIA	JW 11/12	ı	t	NR	-REP	
Z000607 SHAUMARTI, CHEWHY	ı	BL	10-AUG-93	ГМ	60006	24-AUG-93	LEISHMANIA	JW 11/12	+	+	RE	-REP	

Spec ID Patient Name	FPC + SSN	Spec	Received Date	Study	Panel	Assay Date	Virus	Primer	Tube Tu # 1 #	Tube # 2 Int		Comments
Z000608 RAKESH, KUMAR		BL	10-AUG-93	 LM	60006	24-AUG-93	LEISHMANIA	JW 11/12	} } +	; + ; x	RE	
Z000609 MIRTHELESWAR, PRASAD		BL	10-AUG-93	ГМ	60006	24-AUG-93	LEISHMANIA	JW 11/12	+	+	RE	-REP
Z000610 NARESH, PASWAN	ı	BL	10-AUG-93	ГW	60006	24-AUG-93	LEISHMANIA	JW 11/12	+	+	RE	-REP
Z000611 RAJESWAR, PD	1	BĪ	10-AUG-93	ĽΨ	60006	24-AUG-93	LEISHMANIA	JW 11/12	1	Z ,	NR	-REP
Z000612 RUBY, KUMARI	1	BL	10-AUG-93	ΓM	60006	24-AUG-93	LEISHMANIA	JW 11/12	ı	z	NR	-REP
Z000613 RAM, JINISH	ı	BL	10-AUG-93	ΓM	60006	24-AUG-93	LEISHMANIA	JW 11/12	1	z,	NR	-REP
Z000614 MANOJ, RAM	ı	BL	10-AUG-93	ГМ	60006	24-AUG-93	LEISHMANIA	JW 11/12	ı	zi ı	NR	-REP
Z000615 RUBI, KUMARIS	1	BL	10-AUG-93	LM	60006	24-AUG-93	LEISHMANIA	JW 11/12	1	zi ı	NR	-REP
Z000616 RAITHA, MAHAU		BL	10-AUG-93	L.M	60006	24-AUG-93	LEISHMANIA	JW 11/12		zi ı	NR	-квр
Z000626 MANAJ, RAUU	,	BL	10-AUG-93	ΓW	60006	24-AUG-93	LEISHMANIA	JW 11/12	i	Zi ,	NR	-REP
Z000627 RAMJINEESH, PANDIT	•	BL	10-AUG-93	ГМ	60006	24-AUG-93	LEISHMANIA	JW 11/12	ı	Zi ,	NR	-REP
Z000638 RAJESH, KUMAR	•	BL	10-AUG-93	ΜΊ	60006	24-AUG-93	LEISHMANIA	JW 11/12	1	Z ,	NR	-REP
Z000640 RAYETH, LAMB	r	BL	10-AUG-93	I'M	60006	24-AUG-93	LEISHMANIA	JW 11/12	ı	Z ,	NR	-REP
Z000642 SAMUR, KUNG	ť	BL	10-AUG-93	WI	60006	24-AUG-93	LEISHMANIA	JW 11/12	,	, R		-REP
Z000643 AREY, RAYAN	ı	BL	10-AUG-93	WI	60006	24-AUG-93	LEISHMANIA	JW 11/12	ı	- NR		-REP
24930 32211,	,	BL	09-AUG-93	L.M	60006	16-AUG-93	LEISHMANIA	JW 11/12	ı	- NR	ĸ	
24931 32212,	1	BL	09-AUG-93	I.M	60006	16-AUG-93	LEISHMANIA	JW 11/12	ł	- NR	ρĽ	
24932 32213,	ı	BL	09-AUG-93	ГМ	60006	16-AUG-93	LEISHMANIA	JW 11/12	ı	- NR	ρź	
Z000550 31971,	1	BL	16-JUL-93	ГМ	60006	16-AUG-93	LEISHMANIA	JW 11/12	ı	- AR	p <u>r</u>	
2000591 LEH1663,	1	BL	05-AUG-93	гw	60006	16-AUG-93	LEISHMANIA	JW 11/12		- NR	æ	
Z000592 LEH1664,	1	BL	05-AUG-93	MI	60006	16-AUG-93	LEISHMANIA	JW 11/12	r	- NR	K	
Z000593 LEH1665,	ı	BL	05-AUG-93	ГМ	60006	16-AUG-93	LEISHMANIA	JW 11/12		- NA	ĸ	
Z000594 LEH1666,	ı	BL	05-AUG-93	ГМ	60006	16-AUG-93	LEISHMANIA	JW 11/12	1	Ę.	œ	

		1		FT MO DOOTS								
Spec ID Patient Name	FPC + SSN	Spec	c Received e Date	Study	Panel	Assay Date Virus	Virus	Primer	ψ.	Tube # 2 I	Int Comments	
Z000595 LEH1667,		BL	05-AUG-93	E WI	60006	16-AUG-93	LEISHMANIA	JW 11/12	¦ +	+	RE	!
Z000596 LEH1668,		BL	05-AUG-93	ГЖ	60006	16-AUG-93	LEISHMANIA	JW 11/12	+	+	RE	
Z000597 BLUSAU-MIZBSA, SHASH		BL	10-AUG-93	ΓW	60006	16-AUG-93	LEISHMANIA	JW 11/12	+	+	RE	
Z000598 BLUSAU-MIZBSA, SHASH	1	BL	10-AUG-93	ГМ	60006	16-AUG-93	LEISHMANIA	JW 11/12	+	+	RE	
Z000600 KERRY, SUDHRI	ı	BL	10-AUG-93	ΓM	60006	16-AUG-93	LEISHMANIA	JW 11/12	+	+	RE	
Z000601 RAJUARA, SUTHER-KWAR		BL	10-AUG-93	ΓM	60006	16-AUG-93	LEISHMANIA	JW 11/12	+	+	RE	
Z000602 DEIS, GEETA	ı	BL	10-AUG-93	ΓM	60006	16-AUG-93	LEISHMANIA	JW 11/12	+	+	RE	
Z000603 DEIS, GEETA	ı	BL	10-AUG-93	ΓM	60006	16-AUG-93	LEISHMANIA	JW 11/12	+	+	RE	
Z000604 THAFCER, SURON	1	BL	10-AUG-93	LM	60006	16-AUG-93	LEISHMANIA	JW 11/12	+	+	RE	
Z000605 SHUYARRU, KERROZ	•	BL	10-AUG-93	LM	60006	16-AUG-93	LEISHMANIA	JW 11/12	+	+	RE	
Z000606 REEJU, DAS	ı	BL	10-AUG-93	LM	60006	16-AUG-93	LEISHMANIA	JW 11/12	+	+	RE	
Z000607 SHAUMARTI, CHEWHY	1	BL	10-AUG-93	ĽM	60006	16-AUG-93	LEISHMANIA	JW 11/12	ı		NR	
Z000608 RAKESH, KUMAR	1	BL	10-AUG-93	LM	60006	16-AUG-93	LEISHMANIA	JW 11/12	ı		NR	
Z000609 MIRTHELESWAR, PRASAD	1	BL	10-AUG-93	WI	60006	16-AUG-93	LEISHMANIA	JW 11/12	ı		NR	
Z000610 NARESH, PASWAN	,	BL	10-AUG-93	LM	60006	16-AUG-93	LEISHMANIA	JW 11/12	,	ı	NR	
Z000611 RAJESWAR, PD	1	BL	10-AUG-93	I'M	60006	16-AUG-93	LEISHMANIA	JW 11/12	1	ı	NR	
Z000612 RUBY, KUMARI	1	BL	10-AUG-93	I.M	60006	16-AUG-93	LEISHMANIA	JW 11/12	ı	ı	NR	
Z000613 RAM, JINISH	1	BL	10-AUG-93	ΓM	60006	16-AUG-93	LEISHMANIA	JW 11/12	•	f	NR	
Z000614 MANOJ, RAM	1	BL	10-AUG-93	LM	60006	16-AUG-93	LEISHMANIA	JW 11/12	i	1	NR	
Z000647 RUSHA, MOHAN SINGH	1	BL	10~AUG-93	ГМ	60006	23-AUG-93	LEISHMANIA	JW 11/12	1	1	NR	
Z000648 SUNIL, KUMAR	1	BL	10-AUG-93	I'M	60006	23-AUG-93	LEISHMANIA	JW 11/12	+	+	RE	
Z000649 AMRENDON, KUMA	•	BL	10-AUG-93	ΨΊ	60006	23-AUG-93	LEISHMANIA	JW 11/12	+	+	RE	
Z000650 RAMESH, KW	1	BL	10-AUG-93	WI	60006	23-AUG-93	LEISHMANIA	JW 11/12	+	1	UND	

Spec ID Patient Name	FPC + SSN	Spec Type	Received Date	Study	Panel	Assay Date Virus	Virus	Primer	Tube Tube	lbe 2 Int	Comments
Z000651 RAMAKAWT, RAI		BL	10-AUG-93	LM	60006	23-AUG-93	LEISHMANIA	JW 11/12	1	RR	
Z000652 BUDHAN, MAHTO	_	BL	10-AUG-93	ГМ	60006	23-AUG-93	LEISHMANIA	JW 11/12	ı	' NR	~
Z000653 SILAWAR, DEVI	1	BL	10-AUG-93	ΓW	60006	23-AUG-93	LEISHMANIA	JW 11/12	1	- NR	~
Z000654 SUDHIR, KUMAR	1	BL	10-AUG-93	ГМ	60006	23-AUG-93	LEISHMANIA	JW 11/12	ŧ	- ER	~
Z000655 SARRAULLAH,	t	BL	10-AUG-93	LIM	60006	23-AUG-93	LEISHMANIA	JW 11/12	1	- NR	~
Z000656 YANESH, MAHITA	1	BL	10-AUG-93	I.M	60006	23-AUG-93	LEISHMANIA	JW 11/12	+	+ RE	Eq.
Z000657 MO, SONAWAE	t	BL	10-AUG-93	LM	60006	23-AUG-93	LEISHMANIA	JW 11/12	ı	- NR	
Z000658 SWUGH, THAKUR	į	BL	10-AUG-93	LM	60006	23-AUG-93	LEISHMANIA	JW 11/12	ı	+	UND
Z000659 32251,	ţ	BL	13-AUG-93	ΓM	60006	23-AUG-93	LEISHMANIA	JW 11/12	ı	- NR	
Z000660 32252,	ţ	BM	13-AUG-93	LM	60006	23-AUG-93	LEISHMANIA	JW 11/12	+	ONI -	Ð
Z000668 32253,	1	BL	13-AUG-93	LM	60006	23-AUG-93	LEISHMANIA	JW 11/12		- NR	
Z000669 32254,	ı	BL	13-AUG-93	E.M.	60006	23-AUG-93	LEISHMANIA	JW 11/12	ı	- NR	
Z000673 WADDELL, DIRK	20~343-56-3223	BL	17-AUG-93	I.M	60006	23-AUG-93	LEISHMANIA	JW 11/12	ı	- NR	
Z000674 WADDELL, DIRK	20-343-56-3223	BM	17-AUG-93	LM	60006	23-AUG-93	LEISHMANIA	JW 11/12		- NR	
Z000675 WADDELL, DIRK	20~343-56-3223	I.I	18-AUG-93	WI	60006	23-AUG-93	LEISHMANIA	JW 11/12	1	- NR	
25229 LEISHMANIA, 19-AUG-9	ı	BL	19-AUG-93	LM	60006	23-AUG-93	LEISHMANIA	JW 11/12		- RN	
25230 LEISHMANIA, 19-AUG-9	I	BL	19-AUG-93	I.M	60006	23-AUG-93	LEISHMANIA	JW 11/12	•	- NR	
25231 LEISHMANIA, 19-AUG-9	ı	BL	19-AUG-93	LM	60006	23-AUG-93	LEISHMANIA	JW 11/12		- NR	
25232 LEISHMANIA, 19-AUG-9	ı	BĽ	19-AUG-93	IM	60006	23-AUG-93	LEISHMANIA	JW 11/12	1	- NR	
25233 LEISHMANIA, 19-AUG-9	ı	BĽ	19-AUG-93	IM	60006	23-AUG-93	LEISHMANIA	JW 11/12	1	- NR	
25234 LEISHMANIA, 19-AUG-9	ı	BL	19-AUG-93	LM	60006	23-AUG-93	LEISHMANIA	JW 11/12	ı	- NR	
25235 LEISHMANIA, 19-AUG-9	ı	BL	19-AUG-93	LM	60006	23-AUG-93	LEISHMANIA	JW 11/12		, NR	
25236 LEISHMANIA, 19-AUG-9		BL	19-AUG-93	ИП	60006	23-AUG-93	LEISHMANIA	JW 11/12	,	- NR	

!	FPC + SSN	Spec Type	Received Date	Study	Pane1	Panel Assay Date Virus	Virus	Primer	Tube Tube Tube	Tube # 2 Int	Comments
,		BL	10-AUG-93	ГМ	60006	24-AUG-93	LEISHMANIA	JW 11/12	:	ARI -	
20-343-56-3223		BL	24-AUG-93	LM	60006	01-SEP-93	LEISHMANIA	JW 11/12	,	- NR	SPLEEN ASP.
-234-88-3551		BL	30-AUG-93	ГМ	60006	08-SEP-93	LEISHMANIA	JW 11/12	ı	- NR	~
-156-59-8935		BL	03-SEP-93	EM	60006	08-SEP-93	LEISHMANIA	JW 11/12		+	UND IND
-156-59-8935 B	Щ	ВМ	03-SEP-93	ĽW	60006	08-SEP-93	LEISHMANIA	JW 11/12	ı	- NR	~
- BL	m		08-SEP-93	ΓW	60006	14-SEP-93	LEISHMANIA	JW 11/12	ı	- NR	
- BL	BI		08-SEP-93	EM	60006	14-SEP-93	LEISHMANIA	JW 11/12	1	+	UNI
- BL	BL		08-SEP-93	W.	60006	14-SEP-93	LEISHMANIA	JW 11/12	+	+ RE	NEG. CONT.
- BL	BL		08-SEP-93	Ε̈́Μ	60006	14-SEP-93	LEISHMANIA	JW 11/12	1	- NR	-
- BL	BL		08-SEP-93	ГW	60006	14-SEP-93	LEISHMANIA	JW 11/12	ı	- NR	
- BL	BL		08-SEP-93	ΓM	60006	14-SEP-93	LEISHMANIA	JW 11/12	1	- NR	
- BL			08-SEP-93	EM	60006	14-SEP-93	LEISHMANIA	JW 11/12	1	- NR	
- BL (08-SEP-93	I'W	60006	14-SEP-93	LEISHMANIA	JW 11/12	1	- NR	
BI			08~SEP-93	LM	60006	14-SEP-93	LEISHMANIA	JW 11/12	1	- NR	
- BL (08-SEP-93	ΓW	60006	14-SEP-93	LEISHMANIA	JW 11/12	ı	Ä	
- BL			08-SEP-93	IIM	60006	14-SEP-93	LEISHMANIA	JW 11/12	,	- AR	
- BL			08-SEP-93	ΕM	60006	14-SEP-93	LEISHMANIA	JW 11/12	ı	- NR	
- BL (09-SEP-93	I'M	60006	14-SEP-93	LEISHMANIA	JW 11/12	ı	- NR	
- BM (09-SEP-93	ГМ	60006	14-SEP-93	LEISHMANIA	JW 11/12	ı	, An	
-156-59-8935 BL 0		0	03-SEP-93	ГМ	60006	14-SEP-93	LEISHMANIA	JW 11/12	İ	- NR	
20-308-60-0996 BL 2			23-SEP-93	LIM	60006	05-0CT-93	LEISHMANIA	JW 11/12	1	- NR	REP. PLATE
20-308-60-0996 OT			23-SEP-93	EM	60006	05-OCT-93	LEISHMANIA	JW 11/12	1	- NR	REP. PLATE
20-308-60-0996 OT	OŢ	• •	23-SEP-93	ΙΉ	60006	05-OCT-93	LEISHMANIA	JW 11/12	1	- NR	REP. PLATE

Spec ID Patient Name	NSS + Dd.B	Spec	Received	Frobe OW 14	0 0 1		7. m. j. 1.		a)	a)		
	FPC + SSN	Type	٠,	Study	Panel	Assay Date Virus	Virus	Primer	- - #	# 2 II	Int	Comments
	-	BI	27-SEP-93	LM	60006	05-OCT-93	LEISHMANIA	JW 11/12	! !	-	, E	REP. PLATE
		ВМ	27-SEP-93	ΓM	60006	05-OCT-93	LEISHMANIA	JW 11/12	ı	,	NR	REP. PLATE
		BM	27-SEP-93	LM	60006	05-0CT-93	LEISHMANIA	JW 11/12	ı	,	MR	REP. PLATE
	1	BI	27~SEP-93	ΓΜ	60006	05-0CT-93	LEISHMANIA	JW 11/12	ı		æ	REP. PLATE
	ı	BI	27-SEP-93	ГМ	60006	05-0CT-93	LEISHMANIA	JW 11/12	1	-	æ	REP. PLATE
	ı	BM	27-SEP-93	ГМ	60006	05-OCT-93	LEISHMANIA	JW 11/12			NR	REP. PLATE
	ı	BM	27-SEP-93	Ε̈́Μ	60006	05-OCT-93	LEISHMANIA	JW 11/12			MR	REP. PLATE
	ı	BL	27-SEP-93	Ϊ́Μ	60006	05-0CT-93	LEISHMANIA	JW 11/12	1		N.	REP. PLATE
	ı	BM	27-SEP-93	ĽΜ	60006	05~0CT-93	LEISHMANIA	JW 11/12	,	,	MR	REP. PLATE
	•	BL	27-SEP-93	ГМ	60006	05-0CT-93	LEISHMANIA	JW 11/12	1		N.	REP. PLATE
	•	BL	27-SEP-93	ΓM	60006	05-OCT-93	LEISHMANIA	JW 11/12	1	,	NR.	REP. PLATE
	•	BL	27-SEP-93	гw	60006	05-0CT-93	LEISHMANIA	JW 11/12	t	,	NR	REP. PLATE
MALLOY, VICTOR	20-308-60-0996	BL	23~SEP-93	LM	60006	30-SEP-93	LEISHMANIA	JW 11/12	1	-	N.	
MALLOY, VICTOR	20-308-60-0996	OT	23-SEP-93	ГМ	60006	30-SEP-93	LEISHMANIA	JW 11/12	ı	1	æ	
Z000703 MALLOY, VICTOR	20-308-60-0996	OT	23-SEP-93	LM	60006	30-SEP-93	LEISHMANIA	JW 11/12	+	,	IND	
	,	BL	27-SEP-93	ΓM	60006	30-SEP-93	LEISHMANIA	JW 11/12	,	+	ONI	
	1	ВМ	27-SEP-93	ГМ	60006	30-SEP-93	LEISHMANIA	JW 11/12		1	MR	
	1	ВМ	27-SEP-93	ΕM	60006	30-SEP-93	LEISHMANIA	JW 11/12		,	Æ	
	ı	BL	27-SEP-93	ГМ	60006	30-SEP-93	LEISHMANIA	JW 11/12		,	MR	
	1	BL	27-SEP-93	ГМ	60006	30-SEP-93	LEISHMANIA	JW 11/12		+	CNI	
	1	BM	27-SEP-93	LM	60006	30-SEP-93	LEISHMANIA	JW 11/12	ı	,	MR	
	1	BM	27-SEP-93	ΓW	60006	30-SEP-93	LEISHMANIA	JW 11/12	,	,	NR.	
	1	BL	27-SEP-93	MI	60006	30-SEP-93	LEISHMANIA	JW 11/12		1	Ä	

PCR Assay Results: IM Probe JW 14 Spec Received

Spec ID Patient Name	FPC + SSN	Spec Type	Spec Received Type Date	Study	Panel	Assay Date	Virus	Primer	Tube # 1	Tube # 2]	Int	Comments
25984 77,	 	BM	27-SEP-93	I'W	60006	30-SEP-93	LEISHMANIA	JW 11/12	.	+	· Q	! ! ! ! !
25985 78,	·	BL	27-SEP-93	ГМ	60006	30-SEP-93	LEISHMANIA	JW 11/12	1	1	Ä	
25986 80,	ı	BI	27-SEP-93	ΓM	60006	30-SEP-93	LEISHMANIA	JW 11/12	ı	+	CNI	
25987 81,	ı	BL	27-SEP-93	ГМ	60006	30-SEP-93	LEISHMANIA	JW 11/12	•		NR.	
25474 LAKNER, GEORGE	-156-59-8935	BL	03-SEP-93	ΓΜ	60006	30-SEP-93	LEISHMANIA	JW 11/12	ı	1	Æ	
25610 54F,		BL	08-SEP-93	гм	60006	30-SEP-93	LEISHMANIA	JW 11/12	1	1	Æ	
25611 65F,	ı	BL	08-SEP-93	ГМ	60006	30-SEP-93	LEISHMANIA	JW 11/12	+	+	RE	
Z000720 32731,		BI	30-SEP-93	ГМ	60006	14-0CT-93	LEISHMANIA	JW 11/12	ı	1	Æ	REP. PLATE
Z000721 32732,	1	BL	30-SEP-93	ГМ	60006	14-0CT-93	LEISHMANIA	JW 11/12	ı	1	Ä	REP. PLATE
Z000722 32733,	1	BI	30-SEP-93	ГМ	60006	14-0CT-93	LEISHMANIA	JW 11/12	ı	ı	Ħ	REP. PLATE
Z000723 32734,	ı	BL	30-SEP-93	ГМ	60006	14-0CT-93	LEISHMANIA	JW 11/12	ţ	ı	Ä	REP. PLATE
Z000724 32735,	1	BL	30-SEP-93	LM	60006	14-0CT-93	LEISHMANIA	JW 11/12	1	ı	æ	REP. PLATE
Z000725 32736,	1	BL	30-SEP-93	I.M	60006	14-OCT-93	LEISHMANIA	JW 11/12	ι	ı	NR.	REP. PLATE
Z000726 32737,	ı	ΒŢ	30-SEP-93	LM	60006	14-OCT-93	LEISHMANIA	JW 11/12	ı	ı	NR.	REP. PLATE
Z000727 32738,	1	BL	30-SEP-93	LM	60006	14-OCT-93	LEISHMANIA	JW 11/12	ı		NR	REP. PLATE
Z000728 32739,	1	BL	30-SEP-93	LM	60006	14-0CT-93	LEISHMANIA	JW 11/12	ı	1	NR.	REP. PLATE
2000729 327310,	i	BL	30-SEP-93	LM	60006	14-0CT-93	LEISHMANIA	JW 11/12	1	ı	NR.	REP. PLATE
Z000730 327311,	1	BL	30-SEP-93	LM	60006	14-0CT-93	LEISHMANIA	JW 11/12	i	1	NR.	REP. PLATE
2000731 327312,	1	BL	30-SEP-93	I'M	60006	14-0CT-93	LEISHMANIA	JW 11/12	•	ŧ	MR	REP. PLATE
Z000732 327313,		BL	30-SEP-93	LM	60006	14-0CT-93	LEISHMANIA	JW 11/12	ı	ı	Æ	REP. PLATE
2000733 327314,	1	BL	30-SEP-93	ΓM	60006	14-0CT-93	LEISHMANIA	JW 11/12	ı	ı	MR.	REP. PLATE
2000734 327315,	ı	BL	30-SEP-93	LM	60006	14-0CT-93	LEISHMANIA	JW 11/12	1	,	æ	REP. PLATE
2000735 327316,	1	BI	30~SEP-93	E	60006	14-0CT-93	LEISHMANIA	JW 11/12	ı		N.	REP.PLATE

PCR Assay Results: LM

14	
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Probe	

				Probe JW 14								
Spec ID Patient Name	FPC + SSN	Spec Type	Received Date	Study	Panel	Panel Assay Date Virus	Virus	Primer	Tube Tub # 1 # 2	Tube # 2 Int	Comments	
Z000736 327317,		BL	30-SEP-93	LM	60006	14-0CT-93	LEISHMANIA	JW 11/12	; ; ; !	EN -	REP. PLATE	;
Z000737 327318,	- 1	BL	30-SEP-93	μΊ	60006	14-0CT-93	LEISHMANIA	JW 11/12	•	- NR	REP. PLATE	
Z000738 327319,	t	BL	30-SEP-93	I.M	60006	14-0CT-93	LEISHMANIA	JW 11/12		- NR	REP. PLATE	
Z000739 327320,	ı	BL	30-SEP-93	ΓΜ	60006	14-0CT-93	LEISHMANIA	JW 11/12	1	- NR	REP. PLATE	
Z000720 32731,	. 1	BL	30-SEP-93	I'M	60006	13-0CT-93	LEISHMANIA	JW 11/12	+	GNI -	Q	
Z000721 32732,	1	BL	30-SEP-93	IM	60006	13-0CT-93	LEISHMANIA	JW 11/12	1	, NR		
Z000722 32733,	ı	BL	30-SEP-93	ΓW	60006	13-0CT-93	LEISHMANIA	JW 11/12	1	- NR		
Z000723 32734,	•	BL	30-SEP-93	LM	60006	13-0CT-93	LEISHMANIA	JW 11/12	1	- NR		
Z000724 32735,		BL	30-SEP-93	E.M.	60006	13-0CT-93	LEISHMANIA	JW 11/12	1	- NR		
Z000725 32736,	ı	BL	30-SEP-93	ΓM	60006	13-0CT-93	LEISHMANIA	JW 11/12	1	- NR		
Z000726 32737,	ı	BL	30-SEP-93	IM	60006	13-0CT-93	LEISHMANIA	JW 11/12	ı	- NR		
Z000727 32738,	ı	BL	30-SEP-93	ПМ	60006	13-0CT-93	LEISHMANIA	JW 11/12	ı	- NR		
Z000728 32739,	1	BL	30-SEP-93	ΓW	60006	13-0CT-93	LEISHMANIA	JW 11/12	ı	- NR		
Z000729 327310,	•	BL	30-SEP-93	IM	60006	13-0CT-93	LEISHMANIA	JW 11/12	ı	- NR		
Z000730 327311,	ı	BI	30-SEP-93	LM	60006	13-0CT-93	LEISHMANIA	JW 11/12	ı	- AR		
Z000731 327312,		BL	30-SEP-93	LIM	60006	13-0CT-93	LEISHMANIA	JW 11/12	ı	- NR		
Z000732 327313,	,	BI	30-SEP-93	ΓM	60006	13-0CT-93	LEISHMANIA	JW 11/12	1	· NR		
Z000733 327314,		BL	30-SEP-93	Ι'n	60006	13-0CT-93	LEISHMANIA	JW 11/12	ı	- NR		
Z000734 327315,	•	BL	30-SEP-93	LM	60006	13-0CT-93	LEISHMANIA	JW 11/12	ı	- NR		
Z000735 327316,	1	BL	30-SEP-93	LM	60006	13-0CT-93	LEISHMANIA	JW 11/12	ı	- NR		
Z000736 327317,	•	BL	30~SEP-93	ΙΜ	60006	13-0CT-93	LEISHMANIA	JW 11/12	•	- NR		
Z000737 327318,	ı	BL	30-SEP-93	LM	60006	13-0CT-93	LEISHMANIA	JW 11/12	ı	- NR		
Z000738 327319,	ı	BL	30-SEP-93	I.M	60006	13-0CT-93	LEISHMANIA	JW 11/12	1	- NR		

Spec ID Patient Name	FPC + SSN	Spec	Spec Received Type Date	Study	Panel	Assay Date Virus	Virus	Primer	Tube	Tube # 2]	Int G	Comments
Z000739 327320,	 1	BL	30-SEP-93	LM	60006	13-0CT-93	LEISHMANIA	JW 11/12	1	! !	AR .	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Z000740 327321,	ı	BL	30-SEP-93	ΓΜ	60006	13-0CT-93	LEISHMANIA	JW 11/12	1	1	R	
2000741 327322,	1	BL	30-SEP-93	ГМ	60006	13-0CT-93	LEISHMANIA	JW 11/12	Į	1	N.	
Z000742 327323,	,	BL	30-SEP-93	I'M	60006	13-0CT-93	LEISHMANIA	JW 11/12	ı	r	NR.	
Z000743 327324,	ı	BL	30-SEP-93	IIM	60006	13-0CT-93	LEISHMANIA	JW 11/12	1	1	æ	
2000744 327325,	t	BL	30-SEP-93	IIM	60006	13-0CT-93	LEISHMANIA	JW 11/12	ı		NR	
2000745 327326,	1	BL	30-SEP-93	IIM	60006	13-0CT-93	LEISHMANIA	JW 11/12	ı	ı	MR	
Z000746 327327,	,	BL	30-SEP-93	IM	60006	13-0CT-93	LEISHMANIA	JW 11/12	ı	1	NR	
2000747 327328,	1	BL	30-SEP-93	I_M	60006	13-OCT-93	LEISHMANIA	JW 11/12	ı	ı	N.	
2000748 327329,	1	BL	30-SEP-93	Ϊ́Μ	60006	13-0CT-93	LEISHMANIA	JW 11/12	,	ı	NR	
2000749 327330,	1	BL	30-SEP-93	LM	60006	13-0CT-93	LEISHMANIA	JW 11/12	ı	1	展	
2000750 327331,	ı	BL	30-SEP-93	ΓW	60006	13-OCT-93	LEISHMANIA	JW 11/12	ı	ı	Ä	
2000751 327332,	ı	BL	30-SEP-93	ГМ	60006	13-0CT-93	LEISHMANIA	JW 11/12	ı		NR	
2000752 327333,	1	BL	30-SEP-93	ΓM	60006	13-0CT-93	LEISHMANIA	JW 11/12	,	ı	NR.	
2000753 327334,	1	BL	30-SEP-93	WI	60006	13-0CT-93	LEISHMANIA	JW 11/12	1	ŧ	MR	
Z000754 327335,	ı	BL	30-SEP-93	ПМ	60006	13-0CT-93	LEISHMANIA	JW 11/12	J	1	æ	
Z000755 327336,	ŧ	BL	30-SEP-93	I.M	60006	13-0CT-93	LEISHMANIA	JW 11/12	ı	1	æ	
Z000756 327337,	1	BL	30-SEP-93	MI	60006	13-0CT-93	LEISHMANIA	JW 11/12	i	ı	MR	
Z000757 327338,	1	BL	30-SEP-93	I.M	60006	13-0CT-93	LEISHMANIA	JW 11/12	ı		NR.	
Z000758 327339,	ı	BL	30-SEP-93	ΙΜ	60006	13-0CT-93	LEISHMANIA	JW 11/12	ı	1	MR	
26137 KISH, JOHN	ı	OT	30~SEP-93	ΙΜ	60006	13-0CT-93	LEISHMANIA	JW 11/12	+	+	RE	
Z000740 327321, '	ı	BĽ	30-SEP-93	LM	60006	15-OCT-93	LEISHMANIA	JW 11/12	ı	1	R	REP. PLATE
2000741 327322,	ı	BL	30-SEP-93	I.M	60006	15-0CT-93	LEISHMANIA	JW 11/12	+	+	RE	REP. PLATE, NEG CONT.

		Spec	Spec Received						Tube	Thibe		
Spec ID Patient Name	FPC + SSN	Type Dat	Date	Study	Panel	Panel Assay Date Virus	Virus	Primer	#	#	Int	Comments
Z000742 327323,		BL	30-SEP-93	I.M	60006	15-0CT-93	LEISHMANIA	JW 11/12	+	+	RE	REP. PLATE, NEG. CONT.
Z000743 327324,	ı	BL	30-SEP-93	IM	60006	15-0CT-93	LEISHMANIA	JW 11/12	+	+	RE	REP. PLATE, NEG. CONT.
Z000744 327325,	ı	BL	30-SEP-93	LM	60006	15-0CT-93	LEISHMANIA	JW 11/12		t	Ŗ	REP.PLATE
Z000745 327326,		BL	30-SEP-93	I.M	60006	15-0CT-93	LEISHMANIA	JW 11/12	•	1	Ä	REP. PLATE
Z000746 327327,	1	BL	30-SEP-93	IIM	60006	15-0CT-93	LEISHMANIA	JW 11/12	ı	1	æ	REP. PLATE
Z000747 327328,	ı	BL	30-SEP-93	LM	60006	15-0CT-93	LEISHMANIA	JW 11/12	1	1	NR.	REP. PLATE
Z000748 327329,	ı	BĽ	30-SEP-93	ΓW	60006	15-0CT-93	LEISHMANIA	JW 11/12	1		MR	REP. PLATE
Z000749 327330,	ı	BL	30-SEP-93	ГМ	60006	15-0CT-93	LEISHMANIA	JW 11/12	1	1	MR	REP. PLATE
Z000750 327331,	ı	BL	30-SEP-93	IIM	60006	15-0CT-93	LEISHMANIA	JW 11/12	+	•	ONI	REP. PLATE
Z000751 327332,	ı	BL	30-SEP-93	ГM	60006	15-0CT-93	LEISHMANIA	JW 11/12	1	1	NR.	REP. PLATE
Z000752 327333,	1	BĽ	30-SEP-93	Ϊ́Μ	60006	15-0CT-93	LEISHMANIA	JW 11/12	ı	1	MR	REP. PLATE
Z000753 327334,	ı	BL	30-SEP-93	ГМ	60006	15-0CT-93	LEISHMANIA	JW 11/12	1	•	NR	REP. PLATE
Z000754 327335,	ı	BL	30-SEP-93	ГМ	60006	15-0CT-93	LEISHMANIA	JW 11/12	ı	ı	MR	REP. PLATE
Z000755 327336,	ı	BL	30-SEP-93	ГМ	60006	15-0CT-93	LEISHMANIA	JW 11/12	ı	•	MR	REP. PLATE
Z000756 327337,	ı	BL	30-SEP-93	ГМ	60006	15-0CT-93	LEISHMANIA	JW 11/12	r	•	NR	REP. PLATE
2000757 327338,	ı	BL	30-SEP-93	ΓW	60006	15-0CT-93	LEISHMANIA	JW 11/12	1	t	Ä	REP. PLATE
Z000758 327339,	ı	BL	30-SEP-93	LM	60006	15-0CT-93	LEISHMANIA	JW 11/12	1	ı	R	RBP. PLATE
26137 KISH, JOHN	ı	OT	30-SEP-93	ΓW	60006	15-OCT-93	LEISHMANIA	JW 11/12	1	ı	Æ	PLATE .
26305 VAUGHAN, GEORGE	20-543-62-6961	BL	08-OCT-93	I.M	60006	15-0CT-93	LEISHMANIA	JW 11/12	1	1	Ħ	PLATE .
26306 VAUGHAN, GEORGE	20-543-62-6961	BM	08-OCT-93	ΓΜ	60006	15-0CT-93	LEISHMANIA	JW 11/12	1	•	MR	PLATE .
Z000720 32731,	·	BL	30-SEP-93	ГМ	60006	21-0CT-93	LEISHMANIA	JW 11/12	ı		NR	2X.VOL
2000721 32732,	ı	BL	30-SEP-93	LM	60006	21-OCT-93	LEISHMANIA	JW 11/12			Ä	2X.VOL
Z000722 32733,		BL	30-SEP-93	I.M	60006	21-0CT-93	LEISHMANIA	JW 11/12	1	1	Æ	2X.VOL

Spec ID Patient Name	FPC + SSN	Spec	Received Date	Study	Pane]	Panel Assay Date Virus	Virus	Primer	Tube # 1	Tube # 2	Int	Comments
2000723 32734,		BL	30-SEP-93	L WI	60006	21-0CT-93	LEISHMANIA	JW 11/12	1	1	N. N.	2X.VOL
Z000724 32735,	I	BL	30-SEP-93	ГW	60006	21-0CT-93	LEISHMANIA	JW 11/12		1	Ŗ	2X.VOL
Z000725 32736,	•	BL	30-SEP-93	L.M	60006	21-0CT-93	LEISHMANIA	JW 11/12	ı	i	æ	2X.VOL
Z000726 32737,	ı	BIL	30-SEP-93	ΓW	60006	21-0CT-93	LEISHMANIA	JW 11/12	t	1	Æ	2X.VOL
Z000727 32738,	ı	BL	30-SEP-93	ΓM	60006	21-0CT-93	LEISHMANIA	JW 11/12	ı	1	景	2X.VOL
Z000728 32739,	1	BI	30-SEP-93	ΓW	60006	21-0CT-93	LEISHMANIA	JW 11/12	•	•	N.	2X.VOL
2000729 327310,	1	BL	30-SEP-93	ΓM	60006	21-0CT-93	LEISHMANIA	JW 11/12	ı	ı	NR	2X.VOL
Z000730 327311,	ı	BL	30-SEP-93	ΓΜ	60006	21-0CT-93	LEISHMANIA	JW 11/12	1	ŧ	NR	2X.VOL
2000731 327312,	t	BL	30-SEP-93	ΕM	60006	21-0CT-93	LEISHMANIA	JW 11/12	t	1	NR.	2X.VOL
2000732 327313,	i	BL	30-SEP-93	LM	60006	21-0CT-93	LEISHMANIA	JW 11/12	ı	ı	NR	2X.VOL
2000733 327314,	ı	BL	30-SEP-93	LIM	60006	21-0CT-93	LEISHMANIA	JW 11/12		•	NR.	2X.VOL
2000734 327315,	1	BL	30-SEP-93	ΓM	60006	21-0CT-93	LEISHMANIA	JW 11/12	,	,	MR	2X.VOL
Z000735 327316,	t	BL	30~SEP-93	E.M.	60006	21-0CT-93	LEISHMANIA	JW 11/12	ı	1	NR.	2X.VOL
2000736 327317,	1	BĽ	30-SEP-93	ГМ	60006	21-0CT-93	LEISHMANIA	JW 11/12	ı	1	NR	2X.VOL
2000737 327318,	ŀ	BĽ	30-SEP-93	ΓM	60006	21-0CT-93	LEISHMANIA	JW 11/12	,		NR	2X.VOL
2000738 327319,	ı	BL	30-SEP-93	Ľ	60006	21-0CT-93	LEISHMANIA	JW 11/12	ı	•	Ä	2X.VOL
Z000739 327320,	ı	BĽ	30-SEP-93	ГМ	60006	21-0CT-93	LEISHMANIA	JW 11/12	1		Ħ	2X.VOL
Z000740 327321,	ı	BL	30-SEP-93	LM	60006	21-0CT-93	LEISHMANIA	JW 11/12	ı		MR	2X.VOL
Z000741 327322,	1	BĽ	30-SEP-93	IJM	60006	21-0CT-93	LEISHMANIA	JW 11/12	1	1	R	2X.VOL
2000742 327323,	1	BL	30-SEP-93	I.M	60006	21-0CT-93	LEISHMANIA	JW 11/12	ı	ı	Æ	2X.VOL
2000743 327324,	ŀ	BL	30-SEP-93	I.M	60006	21-OCT-93	LEISHMANIA	JW 11/12	ı		Ä	2X.VOL
2000744 327325,	ı	BL	30-SEP-93	LM	60006	21-0CT-93	LEISHMANIA	JW 11/12	1	1	Ħ	2X.VOL
2000745 327326,	1	BL	30-SEP-93	ΓW	60006	21-0CT-93	LEISHMANIA	JW 11/12	1	1	MR	2X.VOL

Spec ID Patient Name	FPC + SSN	Spec	: Received : Date	Study	Pane]	Panel Assay Date Virus	Virus	Primer	Tube # 1	Tube # 2	Int	Comments
Z000746 327327,		BL	30-SEP-93	E WI	60006	21-0CT-93	LEISHMANIA	JW 11/12		1 1	NR.	2X.VOL
Z000747 327328,	ı	BL	30-SEP-93	LM	60006	21-0CT-93	LEISHMANIA	JW 11/12	1	ı	MR	2X.VOL
Z000720 32731,	•	BL	30-SEP-93	MI	60006	21-0CT-93	LEISHMANIA	JW 11/12	1	ŧ	MR	JW11-3, JW12-1
2000721 32732,	•	BL	30-SEP-93	ΓM	60006	21-0CT-93	LEISHMANIA	JW 11/12	1	ı	MR	JW11-3, JW12-1
Z000722 32733,		BL	30-SEP-93	I'M	60006	21-0CT-93	LEISHMANIA	JW 11/12	1	ı	MR	JW11-3, JW12-1
2000723 32734,	1	BL	30-SEP-93	ГМ	60006	21-0CT-93	LEISHMANIA	JW 11/12	1	•	MR	JW11-3, JW12-1
Z000724 32735,		BĻ	30-SEP-93	ΓM	60006	21-0CT-93	LEISHMANIA	JW 11/12	i	1	NR	JW11-3,JW12-1
Z000725 32736,	ı	BL	30-SEP-93	LM	60006	21-0CT-93	LEISHMANIA	JW 11/12	1	1	MR	JW11-3, JW12-1
Z000726 32737,		BL	30-SEP-93	ГМ	60006	21-0CT-93	LEISHMANIA	JW 11/12	1	ı	NR	JW11-3, JW12-1
Z000727 32738,	•	BL	30-SEP-93	ГМ	60006	21-0CT-93	LEISHMANIA	JW 11/12	•	1	XX.	JW11-3, JW12-1
Z000728 32739,	•	BL	30-SEP-93	ΓM	60006	21-0CT-93	LEISHMANIA	JW 11/12	1	ı	N.	JW11-3, JW12-1
Z000729 327310,	1	BL	30-SEP-93	LM	60006	21-0CT-93	LEISHMANIA	JW 11/12	ł	٠	M.	JW11-3, JW12-1
Z000730 327311,	ı	BL	30-SEP-93	ГМ	60006	21-0CT-93	LEISHMANIA	JW 11/12	•	•	æ	JW11-3, JW12-1
Z000731 327312,	*	BL	30-SEP-93	ΙτΜ	60006	21-0CT-93	LEISHMANIA	JW 11/12	1	•	Ä	JW11-3, JW12-1
Z000732 327313,	•	BL	30-SEP-93	ΙΨ	60006	21-0CT-93	LEISHMANIA	JW 11/12	ı	1	Ä	JW11-3, JW12-1
Z000733 327314,	1	BL	30-SEP-93	LM	60006	21-0CT-93	LEISHMANIA	JW 11/12	Ī	1	Æ	JW11-3, JW12-1
Z000734 327315,	1	BL	30-SEP-93	ΓM	60006	21-0CT-93	LEISHMANIA	JW 11/12	ı	1	Ä	JW11-3,JW12-1
Z000735 327316,	1	BL	30-SEP-93	I.M	60006	21-0CT-93	LEISHMANIA	JW 11/12	ı	1	Ä	JW11-3, JW12-1
Z000736 327317,		BL	30-SEP-93	LM	60006	21-0CT-93	LEISHMANIA	JW 11/12	•	٠	R.	JW11-3, JW12-1
Z000737 327318,		BĽ	30-SEP-93	ГМ	60006	21-0CT-93	LEISHMANIA	JW 11/12	1	1	NR	JW11-3, JW12-1
Z000738 327319,	1	BL	30-SEP-93	LM	60006	21-OCT-93	LEISHMANIA	JW 11/12	ı	1	NR	JW11-3, JW12-1
Z000739 327320,	,	BL	30-SEP-93	I.M	60006	21-OCT-93	LEISHMANIA	JW 11/12	1	1	MR	JW11-3, JW12-1
Z000740 327321,	1	BL	30-SEP-93	ΓM	60006	21-0CT-93	LEISHMANIA	JW 11/12	1	•	N.	JW11-3, JW12-1

Spec ID Patient Name	FPC + SSN	Spec Received Type Date	Study	Panel	Panel Assay Date Virus	Virus	Primer	Tube # 1	Tube #2 1	Int	Comments
2000741 327322,		BL 30-SEP-93	L. M.	60006	21-0CT-93	LEISHMANIA	JW 11/12			E E	JW11-3,JW12-1
Z000742 327323,	1	BL 30-SEP-93	LM	60006	21-0CT-93	LEISHMANIA	JW 11/12	1		X.	JW11-3, JW12-1
2000743 327324,	I	BL 30-SEP-93	L.M	60006	21-0CT-93	LEISHMANIA	JW 11/12	1	ı	Ä	JW11-3, JW12-1
Z000744 327325,	1	BL 30-SEP-93	ΨΊ	60006	21-0CT-93	LEISHMANIA	JW 11/12	ı		Ħ	JW11-3, JW12-1
Z000745 327326,	I	BL 30-SEP-93	гw	60006	21-0CT-93	LEISHMANIA	JW 11/12	,		NR.	JW11-3, JW12-1
Z000746 327327,	ı	BL 30-SEP-93	I'M	60006	21-0CT-93	LEISHMANIA	JW 11/12	ı	,	N.	JW11-3,JW12-1
Z000747 327328,	ı	BL 30-SEP-93	ΓM	60006	21-OCT-93	LEISHMANIA	JW 11/12	ı		NR	JW11-3, JW12-1
2000692 328710,	ı	BL 14-0CT-93	IJM	60006	22-0CT-93	LEISHMANIA	JW 11/12	ı	ı	NR	
Z000693 328711,	1	BL 14-0CT-93	ГМ	60006	22-0CT-93	LEISHMANIA	JW 11/12	ı		NR	
Z000694 328712,	ı	BL 14-0CT-93	IIM	60006	22-0CT-93	LEISHMANIA	JW 11/12	1		NR.	
Z000695 32871,		BL 14-0CT-93	LM	60006	22-0CT-93	LEISHMANIA	JW 11/12	1		NR	
Z000696 32872,	ı	BL 14-0CT-93	ΓW	60006	22-OCT-93	LEISHMANIA	JW 11/12		1	MR	
Z000697 32873,	ŧ	BL 14-0CT-93	ΓM	60006	22-0CT-93	LEISHMANIA	JW 11/12	ı	,	NR	
Z000698 32874,		BL 14-0CT-93	IM	60006	22-OCT-93	LEISHMANIA	JW 11/12	ı	ı	NR	
Z000699 32875,	ı	BL 14-0CT-93	ΨΊ	60006	22-OCT-93	LEISHMANIA	JW 11/12	1	1	NR	
Z000704 32876,	ľ	BL 14-0CT-93	Ϊ́Μ	60006	22-OCT-93	LEISHMANIA	JW 11/12	ı	,	N.	
Z000705 32877,		BL 14-0CT-93	ĽM	60006	22-OCT-93	LEISHMANIA	JW 11/12			Ä	
Z000706 32878,	1	BL 14-0CT-93	μ'n	60006	22-0CT-93	LEISHMANIA	JW 11/12		r	NR	
Z000707 32879,	1	BL 14-0CT-93	Ę	60006	22-0CT-93	LEISHMANIA	JW 11/12	ı		NR	
Z000708 BACHMAN, JOHN	20-205-42-4875	TC 20-0CT-93	ΓΜ	60006	29-0CT-93	LEISHMANIA	JW 11/12	+	+	RE	
Z000709 VAUGHAN, GEORGE	20-543-62-6961	BL 21-0CT-93	ГМ	60006	29-0CT-93	LEISHMANIA	JW 11/12	ı	,	NR.	
Z000710 VAUGHAN, GEORGE	20-543-62-6961	BM 21-0CT-93	LM	60006	29-OCT-93	LEISHMANIA	JW 11/12	ı	ı	N.	
Z000711 VAUGHAN, GEORGE	20-543-62-6961	BM 21-0CT-93	ĽΨ	60006	29~0CT-93	LEISHMANIA	JW 11/12	ı	1	NR.	

		5		Probe JW 14								
Spec ID Patient Name	FPC + SSN	Type	necelved Date	Study	Panel	Panel Assay Date Virus	Virus	Primer	Tube # 1	Tube # 2	Int	Comments
26642 54F,	! ! ! ! ! ! !	BL	25-0CT-93	LM	60006	29-0CT-93	LEISHMANIA	JW 11/12	+	+	RE	
26643 65F,	ı	BL	25-OCT-93	ГМ	60006	29-OCT-93	LEISHMANIA	JW 11/12	1	1	MR	
26644 71F,	1	BL	25-0CT-93	LM	60006	29-0CT-93	LEISHMANIA	JW 11/12		1	MR	
26645 72F,	ı	BL	25-0CT-93	LM	60006	29-0CT-93	LEISHMANIA	JW 11/12	,		NR	
26646 73/74F,	1	BL	25-0CT-93	ΓM	60006	29-OCT-93	LEISHMANIA	JW 11/12		1	R	
26647 77F,	ı	BL	25-OCT-93	LM	60006	29-0CT-93	LEISHMANIA	JW 11/12	1	•	NR	
26648 102F,	1	BL	25-0CT-93	ΓW	60006	29-OCT-93	LEISHMANIA	JW 11/12	ı	,	Æ	
26716 VAUGHAN, GEORGE	20-543-62-6961	TO	27-0CT-93	ΓM	60006	08-NOV-93	LEISHMANIA	JW 11/12	i		MR	INSUFF. CELLS
Z000712 VAUGHAN, GEORGE	20-543-62-6961	r.	01-NOV-93	ΓM	60006	08-NOV-93	LEISHMANIA	JW 11/12	i	,	MR	
26879 NERONE, MARCUS A	20-257-17-3841	BL	03-NOV-93	ΓM	60006	08-NOV-93	LEISHMANIA	JW 11/12	ı	t	N.	
26880 NERONE, MARCUS A	20-257-17-3841	BM	03-NOV-93	ΓM	60006	08-NOV-93	LEISHMANIA	JW 11/12	,		MR	
Z000714 BRANDES, RONALD	20-317-48-7871	ΣŢ	17-NOV-93	ΓM	60006	22-NOV-93	LEISHMANIA	JW 11/12	•	ı	Æ	
Z000715 ELLIOTT, E	1	TC	17-NOV-93	LM	60006	22-NOV-93	LEISHMANIA	JW 11/12	1	٠	æ	
Z000716 ELLIOIT, E	ı	 Σ	17-NOV-93	LM	60006	22-NOV-93	LEISHMANIA	JW 11/12	ı	ı	Ħ	
27156 BRANDES, RONALD	20-317-48-7871	BL	17-NOV-93	LM	60006	22-NOV-93	LEISHMANIA	JW 11/12	1	,	R	
27165 VAUGHAN, GEORGE	20-543-62-6961	Γ	18-NOV-93	LM	60006	22-NOV-93	LEISHMANIA	JW 11/12	1		Ħ	
27166 NERONE, MARCUS A	20-257-17-3841	BL 1	18-NOV-93	LM	60006	22-NOV-93	LEISHMANIA	JW 11/12		1	NR	
Z000714 BRANDES, RONALD	20-317-48-7871	J.	17-NOV-93	LIM	60006	24-NOV-93	LEISHMANIA	JW 11/12	,	1	NR	PL1
Z000715 ELLIOTT, E	•	JC 1	L7-NOV-93	IIM	60006	24-NOV-93	LEISHMANIA	JW 11/12	t		NR.	PL1
Z000716 ELLIOIT, E	ı	1G	17-NOV-93	LM	60006	24-NOV-93	LEISHMANIA	JW 11/12	+	,	IND	PL1
27165 VAUGHAN, GEORGE	20-543-62-6961	JG 1	18-NOV-93	ΨΊ	60006	24~NOV-93	LEISHMANIA	JW 11/12	+		IND	PL1, -CONT
27166 NERONE, MARCUS A	20-257-17-3841	BL 1	18-NOV-93	I.M	60006	24-NOV-93	LEISHMANIA	JW 11/12	1	1	XX.	PL1, -CONT
Z000714 BRANDES, RONALD	20-317-48-7871	IC 1	17-NOV-93	LM	60006	29-NOV-93	LEISHMANIA	JW 11/12	1	1	MR	PL2

PCR Assay Results: LM Probe JW 14

Spec ID Patient Name	FPC + SSN	Spec Received Type Date		Study	Panel	Panel Assay Date Virus	Virus	Primer	Tube # 1	Tube # 2	Int	Comments
Z000715 ELLIOTT, E		TC 17-NOV-93		I.M.	60006	29-NOV-93	LEISHMANIA	JW 11/12) 1 1 1	-	NA N	PL2
Z000716 ELLIOTT, E		TC 17-NOV-93		ΓIM	60006	29-NOV-93	LEISHMANIA	JW 11/12	1	ı	N.	PL2
27165 VAUGHAN, GEORGE	20~543-62-6961	TC 18-NOV-93		LM	60006	29-NOV-93	LEISHMANIA	JW 11/12	1	1	æ	PL2
27166 NERONE, MARCUS A	20-257-17-3841	BL 18-NOV-93		LM	60006	29-NOV-93	LEISHMANIA	JW 11/12	1	1	Ħ	PL2
Z000714 BRANDES, RONALD	20-317-48-7871	TC 17-NOV-93		ΓM	60006	29-NOV-93	LEISHMANIA	JW 11/12	ı	ı	M	PL3
Z000715 ELLIOTT, E	1	TC 17-NOV-93		LM	60006	29-NOV-93	LEISHMANIA	JW 11/12	-/+	+	IND	PL3
Z000716 ELLIOTT, E	ı	TC 17-NOV-93		LM	60006	29-NOV-93	LEISHMANIA	JW 11/12		ŧ	R	PL3
27165 VAUGHAN, GEORGE	20-543-62-6961	TC 18-NOV-93		LM	60006	29-NOV-93	LEISHMANIA	JW 11/12	,	+	CNI	PL3
27166 NERONE, MARCUS A	20-257-17-3841	BL 18-NOV-93		LM	60006	29-NOV-93	LEISHMANIA	JW 11/12	1	1	æ	PL3
Z000766 BRANDES, RONALD	20-317-48-7871	LM 23-NOV-93		LM	60006	02~DEC-93	LEISHMANIA	JW 11/12	1	ı	Æ	
Z000767 BRANDES, RONALD	20-317-48-7871	LI 23-NOV-93		ΓW	60006	02-DEC-93	LEISHMANIA	JW 11/12	1	ŧ	Ä	
Z000768 BRANDES, RONALD	20-317-48-7871	TC 23-NOV-93		ΕM	60006	02-DEC-93	LEISHMANIA	JW 11/12	1	1	NR.	
Z000769 BRANDES, RONALD	20-317-48-7871	TC 23-NOV-93		Ϊ́Μ	60006	02-DEC-93	LEISHMANIA	JW 11/12	1	i	MR	
27882 HAYES, JANES	-380-80-7107	BL 21-JAN-94	N-94 LM	Σ	60006	13-JAN-94	LEISHMANIA	JW 11/12	ı	,	æ	
27883 HAYES, JANES	-380-80-7107	BM 21-JAN-94		LM	60006	13-JAN-94	LEISHMANIA	JW 11/12	ı	,	Ä	
2000771 40211,	1	BL 21-JAN-94		LM	60006	26-JAN-94	LEISHMANIA	JW 11/12	1	ı	N.	
Z000772 40212,	4	BL 21-JAN-94	N-94 LM	Σ	60006	26-JAN-94	LEISHMANIA	JW 11/12	ı	1	æ	
Z000773 40213,	t	BL 21-JAN-94	N-94 LM	Σ	60006	26-JAN-94	LEISHMANIA	JW 11/12	ı		NR.	
Z000774 40214,	ı	BL 21-JAN-94	N-94 LM	Σ	60006	26-JAN-94	LEISHMANIA	JW 11/12	1	ı	NR.	
Z000775 40215,	ı	BL 21-JAN-94	N-94 LM	Σ	60006	26-JAN-94	LEISHMANIA	JW 11/12	ı		MR	
Z000776 40216,	1	BL 21-JAN-94	N-94 LM	Σ	60006	26-JAN-94	LEISHMANIA	JW 11/12	1	ı	æ	
Z000777 40217,	1	BL 21-JAN-94	N-94 LM	Σ	60006	26-JAN-94	LEISHMANIA	JW 11/12	1	1	æ	
Z000778 40218,	ı	BL 21-JAN-94	N-94 LM	Σ	60006	26-JAN-94	LEISHMANIA	JW 11/12	ı	ı	NR.	

PCR Assay Results: LM Probe JW 14

Spec ID Patient Name		Spec Type	Spec Received Type Date	Study	Panel		Virus	Primer	Tube Tube # 1 # 2	e Int	Comments
Z000779 40219,		BL	BL 21-JAN-94	L K	60006	26-JAN-94	LEISHMANIA	JW 11/12		NR	
Z000780 402110,		BL	21-JAN-94	ГМ	60006	26-JAN-94	LEISHMANIA	JW 11/12	,	NR	
Z000781 402111,		BŢ	21-JAN-94	I'M	60006	26-JAN-94	LEISHMANIA	JW 11/12	,	NR	
Z000782 402112,	1	BL	21-JAN-94	гW	60006	26-JAN-94	LEISHMANIA	JW 11/12		NR	
2000783 402113,	ı	BL	21-JAN-94	ГМ	60006	26-JAN-94	26-JAN-94 LEISHMANIA	JW 11/12	•	NR	
Z000784 402114,	ı	BL	21-JAN-94	LM	60006	26-JAN-94	LEISHMANIA	JW 11/12	,	æ	
Z000785 ZUPEC, JEFFREY	,	BL	24-JAN-94	LM	60006	26-JAN-94	LEISHMANIA	JW 11/12		R	
Z000786 ZUPEC, JEFFREY	1	BL	24-JAN-94	LM	60006	26-JAN-94	LEISHMANIA	JW 11/12	1	MR	
Z000787 HALLMAN, JAMES	-419-62-6827	፤	25-JAN-94	ГМ	60006	27-JAN-94	LEISHMANIA JW 11/12	JW 11/12	1	MR	

Interpretation Key	Specimen Type	•
	T	*
RE = Reactive	BL = Blood	LN = Lymphnode
NR = Non-Reactive	SK = Skin	BM = Bone Marrow
ND = Non-Diagnostic	LI = Liver	ASP = Aspirate
_	CO = Colon	
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Appendix II. Manuscript submitted for publication

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SRA Technologies

Diagnosis of visceral leishmaniasis from patient blood using the

TITLE:

polymerase chain reaction

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Leishmania PCR

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ABSTRACT

To diagnose visceral leishmaniasis (kala-azar) using peripheral blood rather than tissue aspirates, a PCR technique was developed for which the detection limit is one Leishmania-infected macrophage in 8 mls blood. For Indian, Kenyan, or Brazilian patients with parasitologically proven kala-azar, 57 of 63 cases prior to treatment had blood that was PCR positive (90% sensitivity). None of 40 uninfected persons had PCR positive blood (100% specificity). 12 of 13 Indian patients successfully treated had negative PCR reactions on their blood 1-6 months post treatment (92%). This PCR procedure is capable of parasitologically diagnosing the vast majority of kala-azar cases pre-therapy, may identify patients who have been successfully treated by chemotherapy, and should substantially obviate the need for invasive tests to diagnose kala-azar.

INTRODUCTION

Visceral leishmaniasis (kala-azar), infection of the liver, spleen, and bone marrow with the Leishmania donovani complex, is a significant parasitic problem in the developing world and, with increased international travel and AIDS, in the developed world [1,2]. The diagnosis of visceral leishmaniasis requires parasitological identification of Leishmania from lesion material. The ability to diagnose visceral leishmaniasis from easily obtained material such as patients blood would be a major advance. Because of our interest in diagnosing visceralizing Leishmania (tropica) infection in Operation Desert Storm personnel, we devised a polymerase chain reaction (PCR) method to diagnose Leishmania in patients blood, using L tropica minicircle kDNA as the basis for the PCR primers. We validated the test with blood from patients with the most prevalent clinical presentation of visceralizing Leishmania, kala-azar.

MATERIALS AND METHODS

PCR primers

20 different PCR primer pairs based on extensive literature [3-9] and DNA sequence database searches of Leishmania minicircle kDNA were synthesized (Synthetic Genetics, San Diego, CA). The primers finally chosen for systematic evaluation were designated JW-11-i and JW-12-i, which were 5' biotinylated to facilitate PCR product capture and analysis. JW-14 was the detection probe, 5' coupled to Horseradish Peroxidase (HRP). "I" = deoxyinosine.

- 5' primer JW-11-i: 5'-CCTATTTTACACCAACCCCIAGTTT-3'
- 3' primer JW-12-i: 5'-CGGGTAGGGGCGTTCTGCGAAAIT-3'

probe JW-14: 5'-ATTGAACGGGGTTTCTGTATGCATTTTTCGAA-3'

Sample collection and preparation

Peripheral blood was collected in LeucoPREP™ (Becton-Dickinson, Rutherford, NJ) vacutainer tubes that contained a gel matrix, and within 6 hrs spun at 1500-1800 x g for 20 minutes. The suspension of peripheral blood mononuclear cells (PBMC) above the matrix was removed, exposed to 0.1% saponin in 0.6% NaCL to lyse contaminating red cells, centrifuged (300 x g for 15 min), and then resuspended at a concentration of 3 x 107 PBMCs/ml in lysis buffer (50 mM KCl, 10 mM Tris-HCl, pH 8.3, 2.5 mM MgCl₂, 0.45% NP-40, 0.45% Tween 20, 240 ug/ml proteinase k) at 55°C for 1 hr and then at 95°C for 15 min to lyse the mononuclear cells.

PCR amplification

For each sample assayed, 40 μl of lower PCR mix containing 10X PCR buffer (Promega, Madison, WI), MgCl₂, primers, dNTP's, and 0.1 Unit UNG (uracil-N-glycosylase, Epicentre Technologies, Madison, WI) was added to each tube. A single AmpliWax[™] bead (Perkin Elmer, Norwalk, CT) was placed in each tube, and the tubes were heated to approximately 70°C for five

minutes to melt the wax bead. After cooling to room temperature, 10 µl of upper PCR mix containing 10X PCR buffer, 0.1 Unit UNG, and AmpliTaq™ DNA polymerase (Perkin Elmer, Norwalk, CT) was added. Fifty µl of lysed mononuclear cells, representing an original peripheral blood volume containing 1.5 x 106 PBMCs, was then added. The final reaction volume of 100 μl contained 1X PCR buffer (10mM Tris-HCl, pH 8.3, 50 mM KCl), 2.5 mM MgCl₂, 1.0 μM each primer, 200 μM of each dATP, dCTP, and dGTP (U.S. Biochemicals, Cleveland, OH), 300 μ M dUTP (Epicentre Technologies, Madison, WI), 2.5-5.0 Units AmpliTaq™ DNA polymerase, and 0.2 Unit UNG. Reactions were cycled in a Perkin Elmer model 9600 thermal cycler using the following conditions; 94°C for 5'0", 10 cycles of 97°C for 0'15", 55°C for 1'0", 72°C for 1'0", followed by 30 cycles of 92°C for 0'15", 55°C for 1'0", and 72°C for 1'0". PCR products were held at 72°C or frozen at -20°C until assayed.

PCR product analysis

Reaction products were detected by affinity-based hybridization analysis developed by SRA Technologies using the oligonucleotide probe (JW-14) to sequences bracketed by, but not overlapping, the primers [10,11]. Assay plates (Immulon 4, Dynatech Labs, Chantilly, VA) were coated with 100 μl of 100 μg/ml avidin D (Vector Labs, Burlingame, CA) in coating buffer (50 mM Sodium Bicarbonate pH 9.5, 150 mM NaCl, 0.01% Sodium Azide) per well. Ten µl from each PCR reaction containing biotinylated product DNA was heat-denatured for 5 minutes at 95°C, then transferred to an avidin-coated well containing hybridization solution (5X SSC, 5X Denhardt's, 0.5% SDS, 2% BSA, 50 μg sheared salmon sperm DNA) and 1 pmol per well of HRP-coupled probe JW14 (Synthetic Genetics, San Diego CA). The reaction mixtures were incubated at 42°C for 20 minutes to allow simultaneous hybridization of the probe to the PCR product and binding of the biotinylated PCR product to the solid substrate. After the solution was discarded, each well was washed 4 times using an automatic microtiter plate washer. A substrate solution of 0.6 mg/ml o-phenylene-diamine dihydrochloride (OPD:

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Sigma, St. Louis, MO) in citrate/phosphate buffer, pH 5.5, containing H₂O₂ was then added. The reaction was incubated at room temperature for 10 minutes, stopped by the addition of 1N H₂SO₄ and read at 490nm in a Molecular Devices UVmax microplate reader.

Background in the assay is typically less than 0.06 OD₄₉₀, with a positive signal generally 0.700 OD₄₉₀ or greater. All samples were tested in duplicate reactions with a negative control (all PCR reagents but no DNA). Since 10-20 samples (with 2 experimental and one negative control reaction per sample) were analyzed on each 96-well plate, the mean and standard deviation (SD) for negative control values could be calculated from the 10-20 negative control reactions for each 96-well plate. A sample was defined as positive if the OD₄₉₀ of both experimental reactions was greater than or equal to the mean OD₄₉₀ of the negative controls for that plate plus three SD.

Determination of sensitivity and specificity using laboratory samples

In preliminary work, we found that the DNA equivalence of one promastigote of L donovani and L chagasi, as well as of L tropica (the species for which the primers were originally designed), was detected by this PCR method. When clinical specimens were simulated by infecting the PBMCs of normal volunteers with Leishmania amastigotes, 10 and 5 L tropica-infected macrophages in 8 mls blood were detected each of 4 times, 1 infected macrophage was detected 3 of 4 times, and uninfected macrophages gave no PCR signal on each of

simulated by infecting the PBMCs of normal volunteers with <u>Leishmania</u> amastigotes, 10 and 5 <u>L. tropica-</u>infected macrophages in 8 mls blood were detected each of 4 times, 1 Infected

simulated by infecting the PBMCs of normal volunteers with <u>Leishmania</u> amastigotes,10 and 5

<u>L. tropica-infected</u> macrophages in 8 mls blood were detected each of 4 times, 1 infected macrophage was detected 3 of 4 times, and uninfected macrophages gave no PCR signal on each of 8 occasions. The absence of PCR product when DNA from >10,000 organisms of other genera (<u>Trypanosoma</u> <u>Toxoplasma</u>, <u>Plasmodia</u>, <u>Pneumocystis</u>, <u>Histoplasma</u>, <u>Mycobacterium</u>, or <u>Salmonella</u>) were used indicates that this PCR technique is 100% biologically specific.

Clinical data

To determine if this PCR technique could be used to diagnose kala-azar, blood was drawn from 75 Indians, 11 Kenyans, and 10 Brazilians with disease proven by visualization of Leishmania amastigotes in splenic aspirates (Kenyan and Indian patients) or in bone marrow aspirates (Brazilian patients). Blood was also drawn from 5 Indians, 7 Kenyans, 1 Brazilian, and 27 Americans who were not suspected to be infected with Leishmania.

A majority of specimens were drawn pre-therapy (Table 1). Approximately 90% of these were positive for Leishmania kDNA. The percent of PCR-positive samples for the different endemic areas was 80% for Brazil, 90% from India, and 100% from Kenya. There were 11 patients for whom blood was drawn on each of two consecutive days. There was complete

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instances, and 2 patients had blood that was PCR negative in both instances.

There was no correlation between PCR results and the important clinical parameter of spleen size. For the two false-negative Brazilian samples, the patients' spleen sizes were 6 and

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7 cm below the right costal margin. For the 5 PCR-positive samples in that group, the patients' spleen sizes ranged from 4 to 13 cm (mean = 8.6 cm). The second batch of Indian kala-azar samples contained 3 samples of blood that were negative by PCR. The spleen sizes for these patients ranged from 5 to 11 cm (mean = 8.7 cm). For the 12 PCR-positive samples in that batch, the mean patient spleen size was 6.4 cm.

There were 33 Indian patients for whom blood was drawn during or after therapy (Table 1). These patients were treated either with the classic agent sodium stibogluconate @20 mg/kg/day for 40 days [12] or amphotericin B @1 mg/kg every-other-day for 20 injections [13]. For patients in the first half of therapy, blood was PCR positive in approximately 90% of cases, nearly the same percent as for patients whose blood was taken before therapy. For patients in the second half of therapy, blood was positive in only 37%. In addition, there were 13 patients in whom drug treatment had apparently been successful by clinical criteria (loss of fever, weight gain, decrease in spleen size). By 1-6 months after the end of therapy, blood was positive in 14% to 0% of cases, respectively.

The blood of all 40 healthy volunteers was Leishmania kDNA negative by PCR.

DISCUSSION

We were able to diagnose 90% of cases of parasitologically proven kala-azar by PCR on the patients' peripheral blood. The cases came from the 3 major endemic areas of the world--India, Africa, and Brazil. Since PCR was positive for laboratory samples in which merely one infected macrophage was spiked into 8 mls of blood, the 10% PCR negative samples are thought to be due to biologic false-negativity (the organisms were present in infected organs but were not in the peripheral circulation) rather than to technical false negativity (the organisms were in the blood but were undetected by PCR). Clinical parameters did not differentiate the 90% of patients whose blood was PCR positive from the 10% of patients whose blood was PCR negative, and no patient who was PCR negative in one sample was PCR positive on subsequent samples taken a few days later. We conclude that when blood samples are drawn over a period of a few days, infected macrophages enter the peripheral circulation from diseased organs in 90% but not 100% of patients.

These results represent a substantial clinical advance compared to previous reports on diagnosis of visceral leishmaniasis via PCR. For example, for 7 Indian kala-azar patients prior to treatment for whom the blood was analyzed by another PCR technique, 3 PCR reactions were negative, 2 were positive, one was faintly positive, and one was positive via an alternative detection band [8].

The PCR procedure described herein has potential applicability for the clinical management of kala-azar cases. The 100% specificity indicates that if the blood of a patient suspected of having kala-azar is PCR positive, that patient would not have to undergo invasive organ biopsy for a parasitological diagnosis. The 90% sensitivity indicates that the vast majority of patients with kala-azar will be diagnosed via this technique. For example, it is reasonable to assume clinical judgement is sufficiently accurate so that half of clinically suspected cases are eventually proven to have kala-azar. For every 100 suspected cases, of whom 50 would actually have kala-azar, 45 cases (90%) should be diagnosed on the basis of

blood PCR. Invasive diagnostic tests would only have to be performed on the remaining 55 PCR negative persons to distinguish the 50 who are uninfected from the 5 who would have biological false negative PCR results.

Post therapy, 1 of 13 patients clinically cured of kala-azar was PCR positive in our study, and this patient had blood drawn only 1 month after the end of therapy. The low percent of PCR positivity post therapy suggests that further study of successfully treated kala-azar patients may reveal a time post-therapy when virtually all cases are PCR negative. This PCR technique therefore has the potential to obviate invasive parasitological tests both prior to and post therapy.

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TABLE 1: POLYMERASE CHAIN REACTION RESULTS FOR KALA AZAR PATIENTS

Table depicts countries from which batches of patient samples were obtained, time in relation to treatment that blood for PCR was obtained [Pretreatment (pre-RX); in the first half of treatment (< 0.5 RX); in the second half of treatment (0.5-1.0 RX); or 1, 2, or 6 months after treatment] and PCR results (+ or -). The total number of PCR+ and PCR- results for each country and for all countries are also shown.

COUNTRY/	PFE	< 0.5	0.51.0	1 MONTH	2 MONTH	6 MONTH
BATCH #	FX	RX	RX	POST RX	POST RX	POSTRX
	•					
INDIA #1	_	_		(nana)	[none]	[none]
positive	3	5	1 2	(none) [none]	[none]	[none]
negative	0	0	2	[none]	[HOHe]	[monoj
INDIA #2						
positive	12	4	· · · · 1	[none]	0	[none]
negative	3	0	0	[none]	1	[none]
INDIA #3						
positive	23	2	1	1	0	0
negative	1	1	5	6	3	2
INDIA	TOTAL					
positive	38	11	3	1	0	0
negative	4	1	5	6	4	2
KENYA	TOTAL					
positive	•11	•				
negative	0					
BRAZIL #1						
positive	5					
negative	0					
BRAZIL #2						
positive	3					
negative	2					
BRAZIL	TOTAL					
positive	- 8					
negative	2					

TOTALS FOR ALL COUNTRIES

/ positive	57	11	3	1	0	0
negative	6	1	5	6	4	2
% positive	90	92	37	14	0	0